

Quality Metals

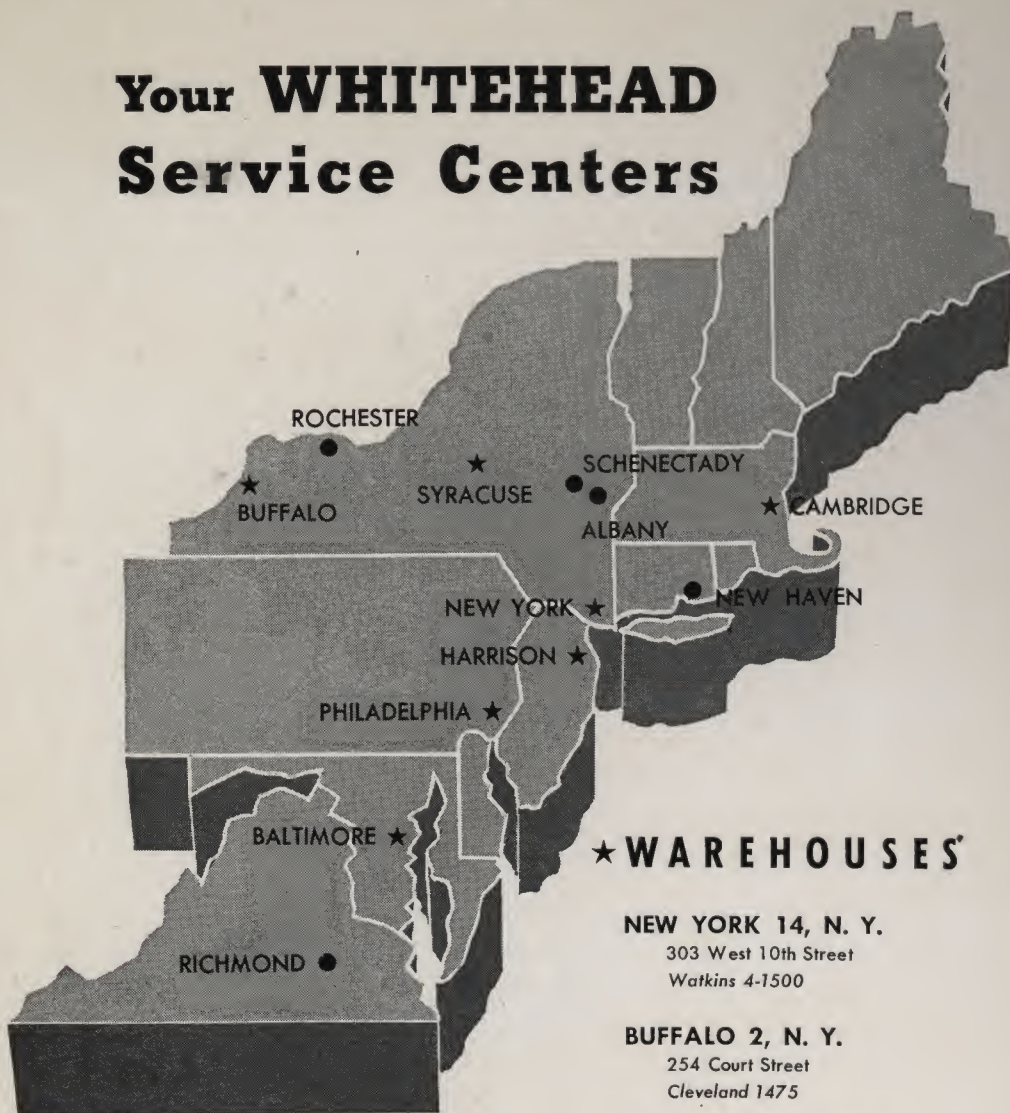
of industry

- ★ Aluminum
- ★ Brass
- ★ Bronze
- ★ Copper
- ★ Inconel
- ★ Monel
- ★ Nickel
- ★ Stainless Steel

THE MARK OF QUALITY



Your **WHITEHEAD** Service Centers



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QUALITY METALS OF INDUSTRY



WHITEHEAD METAL PRODUCTS COMPANY
INCORPORATED

SHEETS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

EASING
ENDS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

MAIN

"Call Whitehead First"

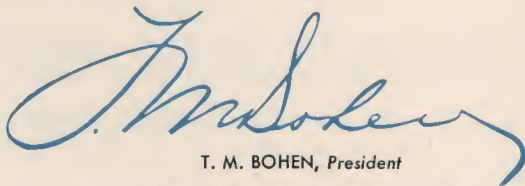
The old peddler's slogan, "You can't do business from an empty wagon", is a fundamental of good warehouse service. It is a principle always present in the minds of the people who maintain our vast stocks for the varied needs of metal users.

Deciding what items to carry, and maintaining these varied stocks, requires experience which comes only from the 35 years of continuous service which we have had in the line of warehousing THE QUALITY METALS OF INDUSTRY.

In this new catalog are listed the more than 20,000 separate items which are carried in stock in our seven convenient warehouses. These materials are presented in a manner designed to simplify selection for the purchasing agent, the engineer, the manufacturer, or the plant manager.

The many thousands of orders we regularly receive from customers who have purchased from us for many years, give us the happy confidence that many industrial plants of all lines have come to regard us as their first source of supply for metals. We intend to deserve this continued confidence and plan to improve our facilities to justify the good will of these numerous customers.

In soliciting your continued business, we point with pride to the fact that it has been the practice of these firms—and we trust it will be your policy—to CALL WHITEHEAD FIRST.

A large, stylized handwritten signature in blue ink, which appears to read "T. M. Bohen".

T. M. BOHEN, *President*

WHITEHEAD METAL PRODUCTS CO., INC.



DIGEST OF CATALOG SECTIONS

THIS CATALOG lists the materials normally available from Whitehead warehouse stocks. Wherever practical, it is indexed according to form and sub-indexed according to alloy to give you an easier reference for the selection and comparison of the metals you need.

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PIPES, TUBES, VALVES AND FITTINGS	97-146
Aluminum, Brass, Bronze, Copper, Monel, Nickel, Inconel, Parker Couplings, Stainless Steel, Saran.	
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Aluminum, Brass, Bronze, Copper, Monel, Nickel, Inconel, Cast Iron, Soft and Silver Solders and Accessory Items.	
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If your fabrication requires screws, rivets or other mechanical means of fastening—consult FASTENERS SECTION. If you weld or join by heat, consult WELDING AND BRAZING SECTION.

ALCOA ALUMINUM

This simplified alloy guide is intended for quick and easy reference. If more detailed information is needed, write for the booklet "Alcoa Aluminum & Its Alloys."

AVERAGE MECHANICAL PROPERTIES

ALCOA ALLOY	GENERAL CHARACTERISTICS	TEMPER DESIGNATION		COLOR CODE	YIELD STRENGTH 1000 LB. PER SQ. IN.	TENSILE STRENGTH 1000 LB. PER SQ. IN.	ELONGATION % IN 2 IN.		RELATIVE ³ RESISTANCE TO OUTDOOR EXPOSURE ⁴
		OLD	NEW				SHEET, 1/16" THICK	ROD, 1/2" DIAM.	
2S	Excellent forming qualities, resistance to corrosion, weldability, electrical conductivity.	O 1/2 H H	O H14 H18 F ²	White	5 16 22 —	13 17.5 24 —	35 9 4 —	45 20 10 —	A A A A
3S	Similar characteristics to 2S but with slightly higher strength.	O 1/2 H	O H14 F ²	Green	6 19 —	16 21.5 —	30 8 —	40 16 —	A A A
52S	Excellent resistance to corrosion, especially marine environment; good workability, higher strength than 2S or 3S.	O 1/4 H 1/2 H	O H32 H34 F ²	Purple	12 27 31 —	27 34 37 —	25 12 10 —	30 18 14 —	A A A A
11S	Good machinability, free-cutting, good mechanical properties.	T3	T3	Brown	48	55	—	15	B
17S	Relatively high strength, fair workability, good machinability.	T	T4	Yellow	40	62	—	22	B
24S	A high-strength material which has largely superseded 17S for structural applications. Use of 24S-O is not recommended unless subsequently heat treated.	O T T	O T3 T4	Red	11 50 48	27 70 68	19 16 20	22 — 19	B B B
ALCLAD 24S	Combines high strength of 24S with excellent resistance to corrosion.	O T T	O T3 T4	—	11 44 42	26 64 64	19 15 19	— — —	A A A
61S	Combines relatively high strength, good workability, and high resistance to corrosion; widely available in most forms.	W T	T4 T6	Blue and Yellow	21 40	35 45	22 12	25 17	A A
63S	High resistance to corrosion. Pleasing natural finish greatly enhanced by the patented Alumilite process.	T	T5 F	Green and Yellow	25 13	30 22	12 20	— —	A A
75S	Very high strength, good resistance to corrosion.	O T	O T6	Brown and Yellow	15 72	33 82	17 11	16 11	B B
ALCLAD 75S	Very high strength, excellent resistance to corrosion. Used for highly stressed structural parts.	O T	O T6	—	14 67	32 76	17 11	16 —	A A

¹Hot forming at temperatures exceeding 400°F. is not recommended.

²"F" (as fabricated) tempers offer properties comparable to intermediate tempers.

³Compared to other Aluminum alloys only, with "A" as the highest rating.

⁴"A" rating indicates does not generally need paint protection; "B" rating indicates paint protection advisable where corrosive atmospheres are encountered.

ALLOYS GUIDE

RELATIVE³ WORKING PROPERTIES

Technical assistance and bulletins on the choice or fabrication of Alcoa Aluminum Alloys are available from all Whitehead offices.

COLD FORMING ¹	GAS WELDING	ARC WELDING	RESISTANCE WELDING	SUITABILITY FOR BRAZING ²	MACHINABILITY	TYPICAL USES AND APPLICATIONS	ALCOA ALLOY
A B C (7)	A A A A	A A A A	A A A A	A A A A	B B B	Dials and name plates, cooking utensils, giftware, reflectors, chemical equipment, tank cars, heat exchangers, pressure vessels, storage tanks.	2S
A B (7)	A A A	A A A	A A A	A A A	B B B	Ductwork, cooking utensils, ice cube trays, garage doors, awning slats, trailer and truck panels, refrigerator panels, gas lines, gasoline tanks, heat exchangers, pressure vessels, storage tanks.	3S
A-B B-B (7)	B B B	A A A	A A A	C C C	B B B	Kitchen cabinets, deep freezers, milk crates, bus and truck bodies, refrigerator trays, aircraft tubing, fencing, fan blades, shoe eyelets.	52S
C-	D	D	B	X	A	Screw-machine products, machine parts, atomizer and hose parts, pipe stems, cigarette holders, tube fittings.	11S
C-	D	C	B ⁵	X	A	Hydraulic brakes and pistons, wire baskets, pulleys, crochet and knitting needles, screw-machine products, coat hangers, gages, tube fittings.	17S
A-D D D	D D D	C C C	B ⁵ B ⁵ B ⁵	X X X	A A A	Aircraft parts, piano hinges, luggage, scientific instruments, ski poles, fastening devices, mine skips, orthopedic equipment, springs.	24S
A-D D D	D D D	C C C	A A A	X X X	A A A	Aircraft frames and skins, venetian blind slats, railroad car roofs and sides.	ALCLAD 24S
B-C-	A A	A A	A A	A A	B B	Sailboats, canoes, truck and bus bodies, scaffolding, transmission towers, mine skips, furniture, chemical equipment, awnings, marine equipment, fire ladders, moldings.	61S
C- (7)	A A	A A	A A	B B	B B	Irrigation pipe, awning supports, windows, architectural trim, storm sash, thresholds, stair rails, general utility pipe.	63S
B D-	D D	C C	A A	X X	A A	Aircraft structural parts.	75S
B D-	D D	C C	A A	X X	A A	Aircraft.	ALCLAD 75S

⁵Resistance to corrosion of weld area is inferior to that of parent material. Use Alclad forms for maximum corrosion resistance.

⁶"X" rating means unsuitable for brazing.

⁷Since "as fabricated" materials may differ in temper, ratings have not been assigned.

NOTE—The values given are to be considered only as a general guide and variations in properties due to manufacturing variables must be expected.

ANACONDA COPPER

Final choice of Alloy should be made only after review of more detailed information available in bulletin form.

AVERAGE

GENERAL CHARACTERISTICS

		FORM (a)	ANA- CONDA ALLOY No.
COPPERS	Copper (Electrolytic Tough Pitch) . . . Copper (Electrolytic Tough Pitch) . . . Copper (Electrolytic Tough Pitch) . . .	Sheet Rod Wire	100
	Copper (Deoxidized)	Tube	939
	Yellow Brass Yellow Brass Yellow Brass	Sheet Rod Wire	59 61 61
BRASSES	Red Brass Red Brass	Sheet Tube	24
	Commercial Bronze Commercial Bronze	Sheet Wire Tube	14
	Muntz Metal	Sheet	66
LEADED BRASSES	Leaded Commercial Bronze Leaded Yellow Brass Free Cutting Yellow Brass Extruded Architectural Bronze	Rod Sheet Rod Rod	202 238 271 280
SPECIAL BRASSES	Naval Brass Tobin Bronze*	Rod	452
	Phosphor Bronze—5% Special Free Cutting Phosphor Bronze	Sheet Rod Wire	351 610 903
NICKEL SILVERS	Nickel Silver Nickel Silver Nickel Silver Nickel Silver	Sheet (18%) Rod (10% leaded) Rod (12% leaded) Wire	719 823 796 723
	Ambrac*	Tube	850
COPPER- SILICON ALLOYS	Everdur* Everdur* Everdur*	Sheet Rod Wire	1010

(a) Form for which properties are given: Sheet, 0.040 in. thick; rod, 1 in. diameter; wire, 0.080 in. diameter; tube, 1 in. diameter x 0.065 in. wall thickness.

(b) Hard temper: Values are for sheet reduced 4 B & S gauge numbers in thickness by cold rolling and for rod, wire and tube of commercial hard-drawn temper.

*Trade Mark Reg. U. S. Pat. Off.

ALLOYS SELECTOR GUIDE

MECHANICAL PROPERTIES

TENSILE STRENGTH 1000 lb./sq. in.		ELONGATION % in 2 in.		YIELD STRENGTH @ 0.5% ELONGATION UNDER LOAD 1000 lb./sq. in.		ROCKWELL HARDNESS No.	
Hard (b)	Soft	Hard (b)	Soft	Hard (b)	Soft	Hard (b)	Soft
46	33	5	35	40	10	B51	F35
45	32	15	45	40	10	B50	F35
66	35	1(c)	35(c)	..	..	..	..
45	35	10	45	40	10	B50	F40
73	45	10	60	60	17	B80	B15
65	46	20	60	50	17	B75	B20
105	50	1(c)	50(c)	..	..	..	..
69	40	7	45	55	15	B76	B5
69	40	10	50	55	15	B76	B5
62	37	6	40	47	12	B70	B1
80	38	1(c)	40(c)	..	..	..	..
80	54	8	45	60	20	B85	B45
54	37	15	40	45	12	B58	B1
73	45	7	50	60	17	B80	B15
54	47	18	60	42	18	B70	B20
..	65	..	25	..	..	..	..
63	56	30	40	35	22	B65	B50
63	56	35	45	35	22	B65	B50
80	48	8	50	65	20	B86	B28
60	..	20	..	45	..	B75	..
110	52	1(c)	40(c)	..	..	..	..
85	58	4	40	70	..	B85	B40
70	..	15	..	40	..	B70	..
68	..	15	..	60	..	..	..
130	65	1(c)	40(c)	..	..	..	..
75	50	10	45	55	18	B82	B25
95	58	7	60	60	22	B92	B35
90	58	18	70	60	22	B90	B35
145	60	1(c)	50(c)	..	..	..	..

(c) Elongation of wire, per cent in 10 in.

NOTE—The values given are to be considered only as a general guide and variations in properties due to manufacturing variables must be expected.

Technical assistance and bulletins on the choice or fabrication of Anaconda Copper Alloys are available from all Whitehead offices.

TYPICAL USES AND APPLICATIONS

Electrical, electronic equipment, storage tanks, vats, stills and kettles. Chemical and cooking equipment, gaskets, automobile radiators, convector heaters, engravers' plates. Roofing, flashing, gutters, downspouts.

Water pipe and tubes, refrigerator tubes.

Pins, eyelets, snap fasteners, musical instruments. Stamped and drawn parts such as automobile reflectors and lamps, artillery and cartridge cases, electrical sockets, lamp bases, etc.

Water pipe, auto radiator cores, drawn, stamped and spun parts, vanity cases. Oil refinery, chemical processing, air-conditioning equipment.

Costume jewelry, grilles, weatherstrip, ammunition components, screws, rivets, hardware stampings, screen cloth.

Architectural work, decorative panels, marine sheathing.

Clock and instrument parts, door butts, screw machine products, plumbing accessories, hardware.

Extruded architectural shapes for store fronts, doors, thresholds, etc.

Marine hardware, nuts, bolts, rivets, airplane, turnbuckle barrels, valve and pump parts, welding rods. Specially straightened Tobin for boat shafting.

High strength springs, snap switches, socket and plug contacts, fuse clips, diaphragms, screen plates, tubing, hardware, bearings, welding rods.

Base metal for silver plated ware. Drafting and musical instruments. Hospital, dental and optical equipment. Architectural trim, slide fasteners, electrical resistances.

Dairy and food machinery parts. Ornamental and decorative pieces.

Strong, weldable copper-silicon alloys for water heater tanks. Sewage, water works, chemical equipment. Bolts, nuts, screws, marine and pole-line hardware.

COPPERS

BRASSES

LEADED BRASSES

SPECIAL BRASSES

PHOSPHOR BRONZES

NICKEL SILVERS

COPPER-SILICON ALLOYS

SHEETS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PROD.
MATS

META

INCO NICKEL ALLOYS

Individualized Nickel alloys for specific applications are not described on this chart. Information on alloys such as 220 Nickel, 224 Nickel, 225 Nickel, 330 Nickel, D Nickel, E Nickel, Ni-Span C and Permanickel may be obtained by calling or writing any Whitehead office.

AVERAGE MECHANICAL

MATERIAL	GENERAL CHARACTERISTICS	CONDITION	TENSILE STRENGTH 1000 psi	YIELD STRENGTH 1000 psi	ELONGA- TION % IN 2"
MONEL*	General Purpose Alloy Corrosion resistant, strong, tough Attractive silvery white color	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper	75 90 100 110	35 50 80 100	40 35 25 5
"R"* MONEL	Free Cutting For high speed machining	Hot-rolled Cold-drawn	85 90	45 75	35 25
"326" MONEL	Corrosion Resistant Strong—Tough Non-magnetic	Annealed Hot-rolled Cold-rolled	75 90 100	35 50 80	40 35 25
"K"* MONEL	Extra Strength and Hardness —comparable to heat treated alloy steel Heat treatable Non-magnetic Low-sparking properties	Hot-rolled As-rolled Heat-treated Cold-drawn As-drawn Heat-treated	100 150 115 155	45 110 85 115	40 25 25 20
"KR"* MONEL	Extra Machining Quality Extra strength and hardness Heat treatable Non-magnetic	Hot-rolled As-rolled Heat-treated Cold-drawn As-drawn Heat-treated	100 140 115 155	45 100 85 105	40 25 25 20
"S"* MONEL	Extra Hard Casting Alloy Non-galling properties Corrosion resistant Non-magnetic Low-sparking properties	Sand-cast As-cast Annealed and heat-treated	130 130	100 100	2 2
NICKEL	Corrosion Resistance Protection for pure products Magnetic below 680° F. Good electrical conductivity High heat transfer properties Highly Magnetostrictive	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper	60 70 90 105	20 25 70 95	40 40 25 5
LOW CARBON NICKEL	Maximum Softness Good electrical conductivity Corrosion resistance High ductility Heat resistance Low rate of work hardening	Annealed	55	15	50
DURANICKEL formerly "Z"* NICKEL	Extra Strength and Hardness Heat treatable Excellent spring properties Low-sparking properties Slightly magnetic after heat treatment	Hot-rolled As-rolled Heat-treated Cold-drawn As-drawn Heat-treated	105 170 120 175	50 130 90 135	35 15 25 15
INCONEL*	Heat Resistance Remains strong Resists oxidation High corrosion resistance	Annealed Hot-rolled Cold-drawn Cold-rolled, hard-temper	85 100 115 135	35 60 90 110	45 35 20 5
INCONEL X*	Heat Resistance Non-magnetic Age-hardenable Low creep rate	+Maximum heat-treated condition only	184	132	24

SELECTOR GUIDE

PROPERTIES†

Technical assistance and bulletins on the choice or fabrication of Inco Nickel Alloys are available from all Whitehead offices.

HARDNESS	IMPACT
Brinell	STRENGTH
3000 kg.	Izod

TYPICAL USES AND APPLICATIONS

MATERIAL

125
150
190
240

105
110
95

All types of equipment and parts requiring a rustless, corrosion-resistant material—with rigidity, strength and toughness of steel: Valves and pump parts. Turbine blades. Laundry machines. Food service equipment. Salt dryers. Roofs in corrosive atmosphere. Processing equipment.

MONEL*

145
180

96
99

Intricate machined parts and automatic screw machined parts: bolts, screws, precision parts for valves, regulators, fire extinguishers, instruments.

"R"* MONEL

125
150
190

...
...
...

Cable shielding. Pickling chains and hooks subject to high stress and sudden shock. Applications requiring resistance to hydrogen embrittlement.

"326" MONEL

160
280
210
290

120+
40
56
26

Corrosive applications where material must be machined or formed, then heat-treated for especially high hardness and strength: large valve stems, pump rods, shafts, wearing sleeves, scrapers, aeronautical instrument parts.

"K"* MONEL

160
245
210
250

Similar
to
"K"
Monel

Screw machine products—where a heat-treatable material similar to "K" Monel must be used for intricate machined parts to withstand heavy loads.

"KR"* MONEL

320
350

6
3

Non-galling valve seats, discs and bushings for high temperature steam. Pump liners and sleeves to withstand severe abrasion and corrosion.

"S"* MONEL

100
110
170
210

120+
120+
120+

Processing equipment for handling food, chemicals, liquors, plastics, rayon, pharmaceuticals, and wherever purity must be protected.

Electrical contact parts to withstand arcing, parts of incandescent lamps; elements for radio and X-Ray tubes.

NICKEL

90

Laboratory crucibles and dishes; platers' bars; processing equipment for caustic soda, nitrates and certain chemicals; beer lines and tanks.

**LOW CARBON
NICKEL**

180
320
220
340

120+
25
25

Corrosion-resistant springs, clips, diaphragms, and similar flexing parts.
Extrusion and injection dies for plastics.

DURANICKEL
formerly
"Z"* NICKEL

150
180
200
260

120+
110
85

High temperature applications up to 2000° F.: Airplane engine exhaust manifolds; bolts for refractory walls; furnace and heat-treating equipment; springs for extremely high temperatures; processing equipment for fatty acids, pharmaceuticals, dyestuffs, pure oils, pectin, milk products, and liquors.

INCONEL*

363

38

High temperature applications, springs, gas turbine parts, and particularly useful where corrosive and oxidizing conditions exist under stress.

INCONEL X*

†Variations can be attained by method of heat treatment.

‡Due to space limitations, average figures are shown.

STAINLESS STEEL

Final choice of alloy should be made only after review of more detailed information.

PHYSICAL PROPERTIES

AISI TYPE NUMBER	GENERAL CHARACTERISTICS	TENSILE STRENGTH 1000 psi	YIELD STRENGTH 1000 psi
301	High rate of work hardening, strongest of austenitic types of stainless steel.	110	40
302	A general purpose stainless steel, most commonly used for normal corrosion-resisting applications.	90	40
303	Excellent free machining properties, particularly for automatic screw machines.	90	40
304	A general purpose alloy, having better corrosion resistance than Type 302 due to controlled carbon content.	85	35
305	Lower rate of work hardening than Types 302 and 304, and less change of magnetic permeability when cold worked.	85	38
309	High heat-resisting qualities.	95	45
310	One of the best heat-resisting stainless steels for general purposes.	95	45
316	Corrosion resistance superior to other stainless steels when exposed to sea water and many types of chemical corrosives.	90	40
317	Corrosion resistance superior in certain special applications over Type 316.	90	40
321	A stabilized alloy used for parts fabricated by welding which cannot be subsequently annealed.	90	35
347	Similar to Type 321, only more commonly used.	95	40
403	A hardenable straight chromium stainless steel, highly resistant to wear and abrasion when hardened.	90	40
410	A general purpose hardenable straight chromium stainless steel, with only fair machining properties.	70	35
416	A hardenable straight chromium stainless steel, having good machining qualities, suitable for automatic screw machines.	85	45
420	Known as "the cutlery type," it is never used in the annealed condition, as it requires hardening to bring out its corrosion-resisting properties.	95	60
430	A non-hardenable grade generally used in the form of cold rolled strip and cold drawn wire. Extremely ductile and suitable for press work.	75	45
442	A non-hardenable straight chromium stainless steel comparing favorably with Type 302 chrome-nickel type, for both corrosion and scale resistance.	80	45
446	A high chromium, non-hardenable alloy, having highest heat and corrosion resistance of all the straight chromium steels.	80	50

NOTE—The values given are to be considered only as a general guide and variations in properties due to manufacturing variables must be expected.

ALLOY SELECTOR GUIDE

SHEETS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

DATA

ANNEALED CONDITION

Technical assistance and bulletins on the choice or fabrication of Stainless Steel Alloys are available from all Whitehead offices.

ELONGATION % IN 2"	ROCKWELL HARDNESS	TYPICAL APPLICATIONS	AISI TYPE NUMBER
60-50	B85	Structural parts, including many applications in the transportation field.	301
60-50	B85	Restaurant and bar equipment, chemical, dairy and milk handling equipment, architectural trim, kitchen ware, beer barrels, etc.	302
60-50	B85	Screw machine products, machined shafts, valves and accessories for chemical handling equipment.	303
60-50	B80	Chemical handling equipment, textile dyeing equipment, coffee urns, soda fountain equipment, doors and kick plates.	304
60-50	B80	Spinning, stamping, drop hammer special drawing, and cold heading operations.	305
55-45	B85	Air preheater baffles, automatic heat treating equipment, aircraft heaters, annealing covers.	309
55-45	B85	Heat exchangers, furnace doors, retorts, skids and trays, annealing boxes, gas turbine and aircraft engine exhaust systems.	310
60-50	B85	Chemical handling and processing equipment, paper and pulp machinery, photographic developing equipment, edible-oil storage tanks, coke plant equipment.	316
60-50	B85	Uses similar to those for Type 316.	317
60-50	B80	Aircraft engine exhaust manifolds, boiler shells, collector rings, expansion joints, high temperature chemical handling equipment.	321
55-45	B85	Same as for Type 321, only more generally used.	347
30-25	B80	Highly stressed parts, steam turbine blades and parts, gas turbine and jet engine parts.	403
30-25	B80	Vacuum towers, coke drums, mild corrosion-resistant service.	410
30-25	B82	Bolts, nuts, screws, valve trim, instrument parts, fishing reels, golf club heads, all screw machine parts.	416
30-25	B92	Cutlery, surgical and dental instruments, plastic molds, ball bearings, gears, shafts, ball check valves, bushings, scissors, gauges.	420
30-25	B80	Automobile trim, building hardware, oil burner rings, window anchor bolts, decorative trim, nitric acid storage tanks and tank cars.	430
25-20	B85	Furnace parts, ladles for molten non-ferrous metals, nitrogen fixation equipment, nozzles for zinc die-casting machines, soot blower tubes, decorative trim.	442
25-20	B85	Principally used for the manufacture of parts to resist scaling at high temperatures.	446

QUALITY PRODUCTS

From the mills of the country's outstanding metal producers come the materials warehoused and distributed by Whitehead—to service your needs.

These producing companies have attained leadership through years of scientific research and practical experience. This prestige is your assurance that the materials you buy from Whitehead are of consistent quality in analyses, characteristics and physical and chemical properties.

Companies whose products we are proud to distribute—

Alloy Metal Wire Co., Inc.
Aluminum Company of America
American Brake Shoe Co.
Anaconda Copper Mining Co.
Driver-Harris Co.
Handy & Harman
The International Nickel Co., Inc.

The C. O. Jelliff Mfg. Corp.
Lukens Steel Co.
The Parker Appliance Co.
Superior Tube Co.
Trent Tube Mfg. Co.
The Wm. Powell Co.
And many others.

TECHNICAL AID

Whitehead Technical Aid is characterized by its depth.

It begins with our salesmen, practical men whose broad contacts with metal problems and whose basic schooling in metals makes them your prime source for answers to day-to-day questions.

This knowledge, bred from experience, is supplemented by two other helpful factors: the knowledge of specialists trained in specific fields, and a vast library of technical bulletins and papers about most of the known information available on the use of metals.

Behind these sources are the development and research departments of our suppliers; metallurgists and engineers who are constantly setting the pace with new developments for industry.

This cumulative information is always at your disposal—to help you cut manufacturing costs; to improve your product; or to reduce maintenance.

For metals that last—or the answer to metal problems—Call Whitehead First.

CUTTING SERVICES

Sawing, shearing or slitting of plate, sheet and rolls can oftentimes simplify manufacturing processes, eliminate scrap and hence cut fabricating costs, and the use of these Whitehead plus services should not be overlooked when planning the purchase of metals for a job.

We are equipped to cut to close commercial tolerances within the limits listed below and will gladly discuss any special cutting which may be of help in your production.

SAWING

	ALUMINUM ALLOYS	NICKEL ALLOYS	COPPER & BRASS	STAINLESS STEEL
Maximum Thickness.....	2"	Do	A 1"	Do
Minimum Thickness.....	1/8"	Not	1/8"	Not
Maximum Length.....	8'	Saw	8'	Saw
Minimum Width.....	B 1"		B 1"	

A—We do not saw Muntz Metal.

B—When sawing a standard size sheet in its entirety, the last cut or width must be a minimum of 6" as saw holder will not grip less.

SHEARING

	ALUMINUM ALLOYS	NICKEL ALLOYS	COPPER & BRASS	STAINLESS STEEL
Maximum Thickness.....	1/2"	1/4"	1/2"	1/4"
Minimum Width.....	*1"	*1"	*1"	*1"

*We will shear narrower than 1" but cannot guarantee tolerance or straightness. On thicknesses heavier than 1/4" we prefer to shear a minimum of 2" widths except in lengths of about 36".

Maximum Width: None, except when length of sheet is over 144". Sheets longer than 144" can be sheared only if width of sheet back of the knife does not exceed 24".

SLITTING

	ALUMINUM ALLOYS	NICKEL ALLOYS	COPPER & BRASS	STAINLESS STEEL
Maximum Thickness.....	.064	Do Not	.064	Do Not
Minimum Thickness.....	.006	Slit	.006	Slit

Widths: 3/16" to 24" in 1/64" increments.

Mandrels: We can wind on mandrels of 2", 4" or 6".

Note: When slitting wide standard size coils into even increments the two outer coils have a tendency to rub on the knives and burr; also, these two outside coils will not come true to dimension due to lateral bow in coiled sheet. In slitting spring temper material in widths under 1/2" there is a tendency for material to twist excessively.

CIRCLE CUTTING

Maximum Thickness: .091 (11 B & S) gauge.

Diameters: 8 3/8" to 50".

Note: We do not cut circles from coiled sheet.

PERFORATED SHEET

See Page 215—Special Products Section.

EXPANDED METAL

See Page 216—Special Products Section.

THREADING

Rods (Round): From 3/8" to 1 1/4" diameter inclusive.

Pipe: Standard and Extra Heavy sizes from 1/8" IPS to 4" IPS inclusive.



STANDARD TERMS AND CONDITIONS OF SALE

1. Credit Terms. Net cash 30 days, or bills may be discounted at rates indicated on invoice provided payments are made as follows: bills dated the 1st to the 15th inclusive, if paid on or before the 25th of the month; bills dated the 16th to and including the last day of the month, if paid on or before the 10th of the following month. Bills will be dated the day of billing.

2. Taxes. Buyer is to pay any present or future sales, use or excise taxes, whether Federal, State, Municipal or measured by the receipts therefrom with respect to the material sold, and if not collected at the time of payment, Buyer will hold this Company harmless.

3. Special Tools. Any special tools, dies, jigs, etc., acquired for the Buyer, notwithstanding any charge therefor, shall be and remain the property of this Company or its Supplier and in the possession and control of this Company or its Supplier. All such equipment will be used exclusively for the materials of the Buyer. If Buyer does not promptly reorder material to be produced from such equipment, this Company or its Supplier may, after notice to Buyer and unless other arrangements are agreed upon, dispose of such tools without liability to Buyer.

4. Adjustment of Claims. Materials sold by this Company are warranted to be free from defects in material and workmanship, but this express warranty is in lieu of and excludes all other warranties. Defective material may be returned to us after inspection by us and upon receipt of definite shipping instructions from us. Goods so returned will be replaced or repaired without charge. We shall not be liable for loss or damage directly or indirectly arising from the use of any material or from any other cause, our liability being expressly limited to the replacement or repair of defective material. Every claim on account of defective material, short weight or any other cause shall be deemed waived by the Buyer unless made in writing within sixty (60) days from the date of shipment of goods to which such claim relates.

5. Delays or Non-Delivery. This Company will not be liable for non-delivery of goods or delay in the performance of orders or contracts or in the delivery or shipment of goods or for any damages suffered by Buyer by reason of such non-delivery or delay, when such non-

delivery or delay is, directly or indirectly, caused by or in any manner arises from Acts of God, wars, shortages of materials or supplies now or hereafter ordered or interruption or delay in the delivery thereof, plant breakdowns or disability for any cause whatsoever, strikes or other labor disturbances, delays or interruptions in transportation facilities, requirements or regulations or policies of any government, and all other disabling causes or contingencies reasonably beyond this Company's control.

6. Clerical Errors. Clerical errors shall be subject to correction.

7. Patents. If any material shall be sold by this Company to meet Buyer's particular specifications or requirements and is not part of this Company's standard line offered by it to the trade generally in the usual course of this Company's business, Buyer agrees to hold this Company harmless against all suits at law or in equity and from all damage, claims and demands for actual or alleged infringement of any United States or foreign patent and to defend any suit or action which may be brought against this Company for any alleged infringement because of the sale of such material.

8. Foundry Products. As to pattern or core box equipment supplied by Buyer, all costs of transportation, repair, alteration and packing will be paid by Buyer, this Company shall not be responsible for loss or damage thereto if caused directly or indirectly by matters reasonably beyond this Company's control, including those set forth in paragraph 5 above, and this Company shall not be responsible for the variance of material from blueprints if such material has been made from such equipment supplied by Buyer. Prices hereon are binding only if equipment to be supplied by Buyer is in the hands of this Company within thirty (30) days from date of this Company's acknowledgement. Unless otherwise agreed in writing between this Company and Buyer, the results of pressure tests, x-ray examinations, fluorescent penetrant examinations or other comparable inspection procedures shall not constitute a basis for rejection of material by Buyer.

9. Waivers. No provision hereof and no breach of any provision shall be deemed waived by reason of any previous waiver of such provision or of any breach thereof.

Sheet *Section*

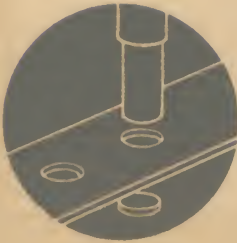


plate
sheet
roll
clad metals

... for sheet section index, see next page



Call **WHITEHEAD**

First!

See inside covers
for addresses and
phone numbers.

RODS

SWAGES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BrazingSPECIAL
MATERIALS

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Detailed index precedes each alloy section.

STANDARD GAUGES USED MEASURING SHEET AND STRIP THICKNESS

*ALUMINUM	.....	B&S Gauge or Decimal Parts of an Inch
BRASS BRONZE EVERDUR	}	..... B&S Gauge or Decimal Parts of an Inch
COPPER	.....	{ Ounces or pounds to the Square Foot B&S Gauge or Decimal Parts of an Inch
MONEL NICKEL INCONEL STAINLESS	}	..... U.S.S. Gauge or Demical Parts of an Inch

To avoid confusion, specify thickness by decimal parts of an inch.

* Use of the AMERICAN STANDARD PREFERRED THICKNESS is receiving consideration in some industries. A table of this standard is listed in data section.

Literature is available to assist you in welding, forming or fabricating the metals listed in this section. Write to your nearest Whitehead office specifying the metal and the fabrication process and we will supply the information you need.

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Alcoa Aluminum Sheet and Plate is available, in order of increasing strength, in 2S, 3S, 52S, 61S, 24S, and 75S alloys (in a full range of tempers) and the ease of fabrication decreases in the same order. Economy dictates the choice of lower strength alloys when their properties are adequate for the required service. Selection of sheet in the hardest temper that will withstand the required forming will insure maximum strength and hardness in the finished part.

Alloy 3S has forming qualities almost equal to those of 2S, the commercially pure Aluminum, and, because of its somewhat higher strength and no greater cost, it is frequently preferred. Much of the sheet used in architecture, for cooking utensils, and for a variety of miscellaneous stampings is 3S.

The next choice, where higher strength is required, is 52S. In the annealed temper, 52S-O, the tensile strength is higher than that of 2S in the hard temper 2S-H18, and about the same as that of 3S in the ¾ hard temper, 3S-H16, although the yield strength is appreciably lower. However, a small percentage reduction by cold-work causes a substantial increase in yield strength with a relatively small increase in tensile strength. For that reason, where the forming is not too severe, 52S-H32 is frequently specified. For more difficult forming the soft temper is necessary, but the cold-work the metal receives during forming will usually add materially to its yield strength.

For marine and architectural applications 52S sheet and 61S-T6 plate are most generally used, although for low-stressed service 3S or even 2S may be specified. For structures requiring a higher unit strength, Alclad 24S-T3 sheet and plate are available. Where the highest strength is necessary, either Alclad 75S-T6 or bare 75S-T6 is used.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

BENDING ALUMINUM AND ALUMINUM ALLOY SHEETS

Approximate Radii for 90° Cold Bend

Minimum permissible radius varies with nature of forming operation, type of forming equipment, and design and condition of tools. Minimum working radius for given material or hardest alloy and temper for a given radius can be ascertained only by actual trial under contemplated conditions of fabrication.

Alloy and Temper	Bend Classification ¹	Alloy and Temper	Bend Classification ¹
2S-O	A	52S-O	B
2S-H12 (2S-1/4 H)*	B	52S-H32 (52S-1/4 H)*	C
2S-H14 (2S-1/2 H)*	B	52S-H34 (52S-1/2 H)*	D
2S-H16 (2S-3/4 H)*	D	52S-H36 (52S-3/4 H)*	F
2S-H18 (2S-H)*	F	52S-H38 (52S-H)*	G
3S-O	A	61S-O	B
3S-H12 (3S-1/4 H)*	B	61S-T4 (61S-W)*	E
3S-H14 (3S-1/2 H)*	C	61S-T6 (61S-T)*	F
3S-H16 (3S-3/4 H)*	E	75S-O	D
3S-H18 (3S-H)*	G	75S-T6 (2) (75S-T)*	K
24S-O (2)	B		
24S-T3 (2) (3) (24S-T)*	J		
24S-T36 (2) (24S-RT)*	K		

*Former temper designations are given in parentheses for information.

¹For corresponding bend radii see Table below.

²Alclad sheet can be bent over slightly smaller radii than the corresponding tempers of the uncoated alloy. Immediately after quenching, this alloy can be formed over appreciably smaller radii.

Radii Required for 90° Bend in Terms of Thickness, t

Bend Classification	Approximate Thickness, Inch					
	0.016 1/64	0.032 1/32	0.064 1/16	0.128 1/8	0.182 3/16	0.258 1/4
A	0	0	0	0	0	0
B	0	0	0	0	0-1t	0-1t
C	0	0	0	0-1t	0-1t	1/2t-1 1/2t
D	0	0	0-1t	1/2t-1 1/2t	1t-2t	1 1/2t-3t
E	0-1t	0-1t	1/2t-1 1/2t	1t-2t	1 1/2t-3t	2t-4t
F	0-1t	1/2t-1 1/2t	1t-2t	1 1/2t-3t	2t-4t	2t-4t
G	1/2t-1 1/2t	1t-2t	1 1/2t-3t	2t-4t	3t-5t	4t-6t
H	1t-2t	1 1/2t-3t	2t-4t	3t-5t	4t-6t	4t-6t
J	1 1/2t-3t	2t-4t	3t-5t	4t-6t	4t-6t	5t-7t
K	2t-4t	3t-5t	3t-5t	4t-6t	5t-7t	6t-10t

2S-O (SOFT) ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.012 (No. 28)	24" x 72"	.178 lbs.	2.14 lbs.	.051 (No. 16)	24" x 72"	.717 lbs.	8.60 lbs.
.016 (No. 26)	24" x 72"	.224 lbs.	2.70 lbs.		36" x 96"		17.20 lbs.
.020 (No. 24)	24" x 72"	.284 lbs.	3.40 lbs.		48" x 144"		34.40 lbs.
.025 (No. 22)	24" x 72"	.357 lbs.	4.29 lbs.	.064 (No. 14)	24" x 72"	.905 lbs.	10.86 lbs.
.032 (No. 20)	24" x 72"	.452 lbs.	5.42 lbs.		36" x 96"		21.72 lbs.
	36" x 96"		10.84 lbs.		48" x 144"		43.44 lbs.
.040 (No. 18)	24" x 72"	.569 lbs.	6.83 lbs.	.081 (No. 12)	36" x 96"	1.140 lbs.	27.36 lbs.
	36" x 96"		13.66 lbs.	.091 (No. 11)	36" x 96"	1.280 lbs.	30.72 lbs.
	48" x 144"		27.32 lbs.	.102 (No. 10)	36" x 96"	1.440 lbs.	34.56 lbs.
				.125 (1/8")	36" x 96"	1.760 lbs.	42.24 lbs.

Complete stocks of Aluminum Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

2S-O COILED SHEET CIRCLES

Mill Finish

THICKNESS			DIAMETER Inches	APPROX. WT. Per 100 Pieces	THICKNESS			DIAMETER Inches	APPROX. WT. Per 100 Pieces
Inches	B&S Gauge				Inches	B&S Gauge			
.032	(No. 20)	8"		15.77 lbs.	.051	(No. 16)	12"		56.33 lbs.
		9"		19.96 lbs.			13"		66.11 lbs.
		10"		24.64 lbs.			14"		76.68 lbs.
		11"		29.81 lbs.			15"		88.02 lbs.
		12"		35.48 lbs.			16"		100.00 lbs.
		13"		41.64 lbs.			17"		113.00 lbs.
		14"		48.29 lbs.			18"		126.70 lbs.
.040	(No. 18)	15"		55.44 lbs.	.064	(No. 14)	7"		24.19 lbs.
		8"		19.86 lbs.			8"		31.59 lbs.
		9"		25.13 lbs.			9"		40.00 lbs.
		10"		31.03 lbs.			10"		49.36 lbs.
		11"		37.55 lbs.			11"		59.73 lbs.
		12"		44.68 lbs.			12"		71.00 lbs.
		13"		52.44 lbs.			13"		83.42 lbs.
		14"		60.82 lbs.			14"		96.75 lbs.
		15"		69.82 lbs.			15"		111.10 lbs.
		16"		79.44 lbs.			16"		126.40 lbs.
.051	(No. 16)	17"		89.68 lbs.	.081	(No. 12)	17"		142.70 lbs.
		18"		100.50 lbs.			18"		160.00 lbs.
		8"		25.04 lbs.			10"		62.22 lbs.
		9"		31.69 lbs.			12"		89.60 lbs.
		10"		39.12 lbs.			14"		122.00 lbs.
		11"		47.34 lbs.			20"		249.00 lbs.

2S-O (SOFT) ALUMINUM SHEETS (IN COILS)

One Side Bright Mill Finish

In Coils of Approximately 150 Pounds

THICKNESS			WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS			WIDTH Inches	APPROX. WT. Per Lin. Ft.
Inches	B&S Gauge				Inches	B&S Gauge			
.010	(No. 30)	12"		.142 lbs.	.032	(No. 20)	18"		.678 lbs.
		18"		.267 lbs.			20"		.753 lbs.
.012	(No. 28)	12"		.178 lbs.			24"		.904 lbs.
.016	(No. 26)	12"		.224 lbs.	.040	(No. 18)	12"		.569 lbs.
		18"		.336 lbs.			14"		.664 lbs.
.020	(No. 24)	12"		.284 lbs.			16"		.759 lbs.
		18"		.426 lbs.			18"		.854 lbs.
		24"		.568 lbs.			20"		.948 lbs.
.025	(No. 22)	12"		.357 lbs.	.051	(No. 16)	24"		1.138 lbs.
		18"		.536 lbs.			12"		.717 lbs.
		24"		.714 lbs.			18"		1.076 lbs.
.032	(No. 20)	12"		.452 lbs.	.064	(No. 14)	24"		1.434 lbs.
		14"		.527 lbs.			12"		.905 lbs.
		16"		.603 lbs.			16"		1.207 lbs.
							18"		1.358 lbs.
							24"		1.810 lbs.

Coil Sizes—6" I.D. for .032 and lighter. 12" I.D. for .040 and heavier.

Note—Above stock sizes may be slit to smaller specified width on arbors of smaller diameter.

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROCESSES

STAIN
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUM

2S-F ALUMINUM PLATES

(Former Designation—2S "As Rolled" Plate)

Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
1/4"	36" x 96"	3.52 lbs.	84.48 lbs.	1/2"	36" x 96"	7.06 lbs.	169.44 lbs.
	48" x 144"		168.96 lbs.	3/4"	36" x 96"	10.58 lbs.	253.92 lbs.
5/16"	36" x 96"	4.41 lbs.	105.84 lbs.	1"	36" x 96"	14.11 lbs.	338.64 lbs.
3/8"	36" x 96"	5.29 lbs.	126.96 lbs.				

2S-H14 ALUMINUM SHEETS

(Former Designation—2S Half Hard)

Mill Finish

THICKNESS Inches	B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.012	(No. 28)	24" x 72"	.178 lbs.	2.14 lbs.	.051	(No. 16)	24" x 72"	.717 lbs.	8.60 lbs.
							36" x 96"		17.20 lbs.
.016	(No. 26)	24" x 72"	.224 lbs.	2.70 lbs.			36" x 120"		21.51 lbs.
							48" x 144"		34.40 lbs.
.020	(No. 24)	24" x 72"	.284 lbs.	3.40 lbs.	.064	(No. 14)	24" x 72"	.905 lbs.	10.86 lbs.
		36" x 96"		6.80 lbs.			36" x 96"		21.72 lbs.
		36" x 120"		8.52 lbs.			36" x 120"		27.15 lbs.
.025	(No. 22)	24" x 72"	.357 lbs.	4.29 lbs.			48" x 144"		43.44 lbs.
		36" x 96"		8.58 lbs.	.081	(No. 12)	36" x 96"	1.14 lbs.	27.36 lbs.
		36" x 120"		10.71 lbs.			48" x 144"		54.72 lbs.
.032	(No. 20)	24" x 72"	.452 lbs.	5.42 lbs.	.091	(No. 11)	36" x 96"	1.28 lbs.	30.72 lbs.
		36" x 96"		10.84 lbs.			48" x 144"		61.44 lbs.
		36" x 120"		13.56 lbs.	.102	(No. 10)	36" x 96"	1.44 lbs.	34.56 lbs.
		48" x 144"		21.70 lbs.			48" x 144"		69.12 lbs.
.040	(No. 18)	24" x 72"	.569 lbs.	6.83 lbs.	.125	(1/8")	36" x 96"	1.76 lbs.	42.24 lbs.
		36" x 96"		13.66 lbs.			48" x 144"		84.48 lbs.
		36" x 120"		17.07 lbs.	.188	(*3/16")	36" x 96"	2.65 lbs.	63.60 lbs.
		48" x 144"		27.32 lbs.			48" x 144"		127.20 lbs.

*3/16" thick is 2S-H24.

2S-H14 ALUMINUM SHEETS

(Former Designation—2S Half Hard)

Bright Finish

THICKNESS Inches	B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.016	(No. 26)	24" x 72"	.224 lbs.	2.70 lbs.	.040	(No. 18)	24" x 72"	.569 lbs.	6.83 lbs.
							36" x 96"		13.66 lbs.
.020	(No. 24)	24" x 72"	.284 lbs.	3.40 lbs.	.051	(No. 16)	24" x 72"	.717 lbs.	8.60 lbs.
		36" x 96"		6.80 lbs.			36" x 96"		17.20 lbs.
.025	(No. 22)	24" x 72"	.357 lbs.	4.29 lbs.			48" x 144"		34.40 lbs.
		36" x 96"		8.58 lbs.	.064	(No. 14)	24" x 72"	.905 lbs.	10.86 lbs.
.032	(No. 20)	24" x 72"	.452 lbs.	5.42 lbs.			36" x 96"		21.72 lbs.
		36" x 96"		10.84 lbs.			48" x 144"		43.44 lbs.

.020 and heavier paper interleaved for surface protection.

See WELDING SECTION for selection of proper Welding Rod.

Special sheet sizes may be obtained by sawing or shearing. See page 13.



SHEET • PLATES • SHEETS • ROLLS

2S-H18 ALUMINUM LIGHTING SHEETS

(Former Designation—2S Hard Lighting Sheet)

Specular Finish

SPECULAR FINISH SHEET HAS A COATING OF SPECIAL PURITY
WHICH PROVIDES EXCEPTIONALLY HIGH LIGHT REFLECTIVITY

THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT	
Inches	B&S Gauge		Per Sq. Ft.	Per Sheet	Inches	B&S Gauge		Per Sq. Ft.	Per Sheet
.020	(No. 24)	24" x 72"	.284 lbs.	3.40 lbs.	.032	(No. 20)	24" x 72"	.452 lbs.	5.42 lbs.
.025	(No. 22)	24" x 72"	.357 lbs.	4.29 lbs.					

Paper interleaved for surface protection.

ALUMINUM SHEETS FOR *ALUMILITE FINISH

Standard Bright Finish

THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT	
Inches	B&S Gauge		Per Sq. Ft.	Per Sheet	Inches	B&S Gauge		Per Sq. Ft.	Per Sheet
.020	(No. 24)	36" x 96"	.284 lbs.	6.82 lbs.	.081	(No. 12)	36" x 96"	1.14 lbs.	27.36 lbs.
.025	(No. 22)	36" x 96"	.357 lbs.	8.58 lbs.			48" x 144"		54.72 lbs.
.032	(No. 20)	36" x 96"	.452 lbs.	10.84 lbs.	.091	(No. 11)	36" x 96"	1.28 lbs.	30.72 lbs.
		48" x 144"		21.70 lbs.			48" x 144"		61.44 lbs.
.040	(No. 18)	36" x 96"	.569 lbs.	13.66 lbs.	.102	(No. 10)	36" x 96"	1.44 lbs.	34.56 lbs.
		48" x 144"		27.32 lbs.			48" x 144"		69.12 lbs.
.051	(No. 16)	36" x 96"	.717 lbs.	17.20 lbs.	.125	(1/8")	36" x 96"	1.76 lbs.	42.24 lbs.
		48" x 144"		34.40 lbs.			48" x 144"		84.48 lbs.
.064	(No. 14)	36" x 96"	.905 lbs.	21.72 lbs.					
		48" x 144"		43.44 lbs.					

Paper interleaved for surface protection.

*A patented process for applying an anodic oxide coating. Write for booklet "Finishes for Alcoa Aluminum."

ALUMINUM UTILITY SHEETS

For applications where appearance, flatness and specific engineering qualities are not important factors in the finished product.

THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT	
Inches	B&S Gauge		Per Sq. Ft.	Per Sheet	Inches	B&S Gauge		Per Sq. Ft.	Per Sheet
.020	(No. 24)	36" x 96"	.284 lbs.	6.80 lbs.	.040	(No. 18)	36" x 96"	.569 lbs.	13.66 lbs.
.025	(No. 22)	36" x 96"	.357 lbs.	8.57 lbs.	.051	(No. 16)	36" x 96"	.717 lbs.	17.20 lbs.
.032	(No. 20)	36" x 96"	.452 lbs.	10.85 lbs.					

3S-H14 ALCLAD ALUMINUM PLATES

For Heat Exchangers

THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT	
Inches	B&S Gauge		Per Sq. Ft.	Per Sheet	Inches	B&S Gauge		Per Sq. Ft.	Per Sheet
.250	(1/4")	24" x 72"	3.60 lbs.	43.20 lbs.	.375	(3/8")	24" x 72"	5.40 lbs.	64.80 lbs.
							36" x 96"		129.60 lbs.

Stenciled with alloy and temper designation for identification.

For economy and appearance, and to safeguard against corrosion, "Fasten Aluminum with Aluminum!"

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTEN-
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROCESSES

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUM

3S-O (SOFT) ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.025 (No. 22)	24" x 72" 36" x 96"	.357 lbs.	4.28 lbs. 8.58 lbs.	.081 (No. 12)	36" x 96" 48" x 144"	1.14 lbs.	27.36 lbs. 54.72 lbs.
.032 (No. 20)	36" x 96"	.452 lbs.	10.85 lbs.	.091 (No. 11)	36" x 96" 48" x 144"	1.28 lbs.	30.72 lbs. 61.44 lbs.
.040 (No. 18)	36" x 96" 48" x 144"	.569 lbs.	13.66 lbs. 27.32 lbs.	.125 (1/8")	36" x 96" 48" x 144"	1.76 lbs.	42.24 lbs. 84.48 lbs.
.051 (No. 16)	36" x 96" 48" x 144"	.717 lbs.	17.20 lbs. 34.40 lbs.				
.064 (No. 14)	36" x 96" 48" x 144"	.905 lbs.	21.72 lbs. 43.44 lbs.				

.051 and heavier paper interleaved for surface protection.

3S-H14 ALUMINUM SHEETS

(Former Designation—3S Half Hard)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.016 (No. 26)	24" x 72"	.224 lbs.	2.70 lbs.	.051 (No. 16)	48" x 96" 48" x 120" 48" x 144" 60" x 144"	.717 lbs.	22.94 lbs. 28.68 lbs. 34.40 lbs. 43.02 lbs.
.020 (No. 24)	24" x 72" 30" x 96" 36" x 96" 36" x 120"	.284 lbs.	3.40 lbs. 5.68 lbs. 6.80 lbs. 8.52 lbs.	.064 (No. 14)	30" x 96" 36" x 96" 36" x 120" 48" x 96" 48" x 120" 48" x 144" 60" x 144"	.905 lbs.	18.10 lbs. 21.72 lbs. 27.15 lbs. 28.96 lbs. 36.20 lbs. 43.44 lbs. 54.30 lbs.
.025 (No. 22)	36" x 96" 36" x 120"	.357 lbs.	8.57 lbs. 10.71 lbs.	.081 (No. 12)	36" x 96" 48" x 144"	1.14 lbs.	27.36 lbs. 54.72 lbs.
.032 (No. 20)	30" x 96" 36" x 96" 36" x 120" 48" x 96" 48" x 120" 48" x 144"	.452 lbs.	9.04 lbs. 10.85 lbs. 13.56 lbs. 14.48 lbs. 18.10 lbs. 21.70 lbs.	.091 (No. 11)	36" x 96" 48" x 144"	1.28 lbs.	30.72 lbs. 61.44 lbs.
.040 (No. 18)	30" x 96" 36" x 96" 36" x 120" 48" x 96" 48" x 120" 48" x 144" 60" x 144"	.569 lbs.	11.38 lbs. 13.66 lbs. 17.07 lbs. 18.20 lbs. 22.76 lbs. 27.32 lbs. 34.14 lbs.	.102 (No. 10)	36" x 96" 48" x 144"	1.44 lbs.	34.56 lbs. 69.12 lbs.
.051 (No. 16)	30" x 96" 36" x 96" 36" x 120"	.717 lbs.	14.34 lbs. 17.20 lbs. 21.51 lbs.	.125 (1/8")	36" x 96" 48" x 144" 60" x 144"	1.76 lbs.	42.24 lbs. 84.48 lbs. 105.60 lbs.
				.188 (*3/16")	36" x 96" 48" x 144"	2.65 lbs.	63.60 lbs. 127.20 lbs.

*3/16" thick is 3S-H24.

3S-F ALUMINUM PLATES

(Former Designation—3S "As Rolled")

Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.250 (1/4")	24" x 72" 36" x 96"	3.52 lbs.	42.24 lbs. 84.48 lbs.	.250 (1/4")	48" x 144"	3.52 lbs.	168.96 lbs.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.



SHEET • PLATES • SHEETS • ROLLS

52S-O ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	36" x 96"	.278 lbs.	6.67 lbs.	.064 (No. 14)	36" x 96"	.889 lbs.	21.34 lbs.
.025 (No. 22)	36" x 96"	.351 lbs.	8.43 lbs.		48" x 144"		42.68 lbs.
.032 (No. 20)	36" x 96"	.443 lbs.	10.63 lbs.	.081 (No. 12)	48" x 144"	1.13 lbs.	54.24 lbs.
	48" x 144"		21.26 lbs.	.091 (No. 11)	48" x 144"	1.26 lbs.	60.48 lbs.
.040 (No. 18)	36" x 96"	.559 lbs.	13.42 lbs.	.125 (1/8")	48" x 144"	1.78 lbs.	85.44 lbs.
	48" x 144"		26.83 lbs.	.188 (3/16")	48" x 144"	2.61 lbs.	125.28 lbs.
.051 (No. 16)	36" x 96"	.708 lbs.	16.99 lbs.				
	48" x 144"		33.98 lbs.				

.051 and heavier paper interleaved for surface protection.

52S-H32 ALUMINUM SHEETS

(Former Designation—52S Quarter Hard)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	36" x 96"	.278 lbs.	6.67 lbs.	.064 (No. 14)	36" x 96"	.889 lbs.	21.34 lbs.
	36" x 144"		10.01 lbs.		48" x 96"		28.45 lbs.
.025 (No. 22)	36" x 96"	.351 lbs.	8.43 lbs.		48" x 144"		42.68 lbs.
	36" x 144"		12.64 lbs.	.081 (No. 12)	36" x 96"	1.13 lbs.	27.12 lbs.
.032 (No. 20)	36" x 96"	.443 lbs.	10.63 lbs.		48" x 96"		36.16 lbs.
	48" x 96"		14.18 lbs.		48" x 144"		54.24 lbs.
	48" x 144"		21.26 lbs.	.091 (No. 11)	36" x 96"	1.26 lbs.	30.24 lbs.
.040 (No. 18)	36" x 96"	.559 lbs.	13.42 lbs.		48" x 96"		40.32 lbs.
	48" x 96"		17.89 lbs.		48" x 144"		60.48 lbs.
	48" x 144"		26.83 lbs.	.125 (1/8")	36" x 96"	1.78 lbs.	42.72 lbs.
.051 (No. 16)	36" x 96"	.708 lbs.	16.99 lbs.		48" x 144"		85.44 lbs.
	48" x 96"		22.66 lbs.	.188 (3/16")	36" x 96"	2.61 lbs.	62.64 lbs.
	48" x 144"		33.98 lbs.		48" x 144"		125.28 lbs.

*3/16" thick is 52S-H22.

52S-H34 ALUMINUM SHEETS

(Former Designation—52S Half Hard)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	36" x 96"	.278 lbs.	6.67 lbs.	.051 (No. 16)	36" x 96"	.708 lbs.	16.99 lbs.
.025 (No. 22)	36" x 96"	.351 lbs.	8.43 lbs.		48" x 120"		28.32 lbs.
					48" x 144"		33.98 lbs.
.032 (No. 20)	36" x 96"	.443 lbs.	10.63 lbs.	.064 (No. 14)	36" x 96"	.889 lbs.	21.34 lbs.
	48" x 96"		14.18 lbs.		48" x 120"		35.56 lbs.
	48" x 120"		17.72 lbs.		48" x 144"		42.68 lbs.
	48" x 144"		21.26 lbs.	.081 (No. 12)	48" x 144"	1.13 lbs.	54.24 lbs.
.040 (No. 18)	36" x 96"	.559 lbs.	13.42 lbs.	.091 (No. 11)	48" x 144"	1.26 lbs.	60.48 lbs.
	48" x 96"		17.89 lbs.	.125 (1/8")	48" x 144"	1.78 lbs.	85.44 lbs.
	48" x 120"		22.36 lbs.	.188 (3/16")	48" x 144"	2.61 lbs.	125.28 lbs.
	48" x 144"		26.83 lbs.				

Complete stocks of Aluminum Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

21

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
MATERIALS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUM

52S-F ALUMINUM PLATES

(Former Designation—52 "As Rolled" Plate)

Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.250 (1/4")	36" x 96"	3.46 lbs.	83.04 lbs.	.250 (1/4")	48" x 144"	3.46 lbs.	166.08 lbs.

61S-T4 ALUMINUM SHEETS

(Former Designation—61SW)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.025 (No. 22)	36" x 144"	.357 lbs.	12.85 lbs.	.051 (No. 16)	48" x 144"	.717 lbs.	34.41 lbs.
.032 (No. 20)	48" x 144"	.452 lbs.	21.70 lbs.	.064 (No. 14)	48" x 144"	.905 lbs.	43.44 lbs.
.040 (No. 18)	48" x 144"	.569 lbs.	27.31 lbs.				

Stenciled with Alloy and Temper Designation for identification.

61S-T6 ALUMINUM SHEETS

(Former Designation—61ST)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.025 (No. 22)	36" x 144"	.357 lbs.	12.85 lbs.	.081 (No. 12)	48" x 144"	1.14 lbs.	54.72 lbs.
.032 (No. 20)	36" x 96"	.452 lbs.	10.85 lbs.	.091 (No. 11)	48" x 144"	1.28 lbs.	61.44 lbs.
	48" x 144"		21.70 lbs.	.102 (No. 10)	48" x 144"	1.44 lbs.	69.12 lbs.
.040 (No. 18)	36" x 96"	.569 lbs.	13.66 lbs.	.125 (1/8")	36" x 144"	1.76 lbs.	63.36 lbs.
	48" x 144"		27.31 lbs.		48" x 144"		84.48 lbs.
.051 (No. 16)	36" x 96"	.717 lbs.	17.21 lbs.	.156 (5/16")	48" x 144"	2.21 lbs.	106.08 lbs.
	48" x 144"		34.41 lbs.	.188 (3/16")	48" x 144"	2.65 lbs.	127.20 lbs.
.064 (No. 14)	36" x 96"	.905 lbs.	21.72 lbs.		60" x 144"		159.00 lbs.
	48" x 144"		43.44 lbs.				

61S-T6 ALUMINUM PLATES

(Former Designation—61ST)

Sheared Edge—Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.250 (1/4")	36" x 96"	3.53 lbs.	84.72 lbs.	.500 (1/2")	36" x 96"	7.06 lbs.	169.44 lbs.
	48" x 144"		169.44 lbs.	.750 (3/4")	36" x 96"	10.58 lbs.	253.92 lbs.
	60" x 144"		211.80 lbs.	1.000 (*1)	36" x 96"	14.12 lbs.	338.88 lbs.
.375 (3/8")	36" x 96"	5.29 lbs.	126.96 lbs.				
	48" x 144"		253.92 lbs.				

*Sawed edge.

Stenciled with Alloy and Temper Designation for identification.

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION.**



SHEET • PLATES • SHEETS • ROLLS

24S-O BARE ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.025 (No. 22)	48" x 144"	.364 lbs.	17.48 lbs.	.081 (No. 12)	48" x 144"	1.16 lbs.	55.68 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.188 (3/16")	48" x 144"	2.70 lbs.	129.60 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.250 (1/4")	48" x 144"	3.60 lbs.	172.80 lbs.
.072 (No. 13)	48" x 144"	1.040 lbs.	49.92 lbs.				

Oiled for surface protection.

Stenciled with Alloy and Temper Designation for identification.

24S-O ALCLAD ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.016 (No. 26)	36" x 144"	.229 lbs.	8.24 lbs.	.072 (No. 13)	48" x 144"	1.04 lbs.	49.92 lbs.
.020 (No. 24)	36" x 144"	.289 lbs.	10.40 lbs.	.081 (No. 12)	48" x 144"	1.16 lbs.	55.68 lbs.
.025 (No. 22)	48" x 144"	.364 lbs.	17.48 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.102 (No. 10)	48" x 144"	1.47 lbs.	70.56 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.156 (5/32")	48" x 144"	2.25 lbs.	108.00 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.188 (3/16")	48" x 144"	2.70 lbs.	129.60 lbs.

Paper interleaved for surface protection.

Stenciled with Alloy and Temper Designation for identification.

24S-T3 BARE ALUMINUM SHEETS

(Former Designation—24ST)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	36" x 144"	.289 lbs.	10.40 lbs.	.081 (No. 12)	48" x 144"	1.16 lbs.	55.68 lbs.
.025 (No. 22)	48" x 144"	.364 lbs.	17.48 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.102 (No. 10)	48" x 144"	1.47 lbs.	70.56 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.156 (5/32")	48" x 144"	2.25 lbs.	108.00 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.188 (3/16")	48" x 144"	2.70 lbs.	129.60 lbs.
.072 (No. 13)	48" x 144"	1.040 lbs.	49.92 lbs.				

Oiled for surface protection.

Stenciled with Alloy and Temper Designation for identification.

Special sheet sizes may be obtained by sawing or shearing. See page 13.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTEN-
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUM

24S-T4 BARE ALUMINUM PLATES

(Former Designation—24ST)

Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.250 (1/4")	24" x 72" 36" x 96" 48" x 144"	3.60 lbs.	43.20 lbs. 86.40 lbs. 172.80 lbs.	.750 (3/4")	24" x 72" 36" x 96"	10.80 lbs.	129.60 lbs. 259.20 lbs.
.312 (5/16")	24" x 72" 36" x 96"	4.50 lbs.	54.00 lbs. 108.00 lbs.	.875 (7/8")	24" x 72" 36" x 96"	12.60 lbs.	151.20 lbs. 302.40 lbs.
.375 (3/8")	24" x 72" 36" x 96" 48" x 144"	5.40 lbs.	64.80 lbs. 129.60 lbs. 259.20 lbs.	1.000 (1")	24" x 72" 36" x 96"	14.40 lbs.	172.80 lbs. 345.60 lbs.
.500 (1/2")	24" x 72" 36" x 96"	7.20 lbs.	86.40 lbs. 172.80 lbs.	1.250 (1 1/4")	24" x 72"	18.00 lbs.	216.00 lbs.
.625 (5/8")	24" x 72" 36" x 96"	9.00 lbs.	108.00 lbs. 216.00 lbs.	1.500 (1 1/2")	24" x 72"	21.60 lbs.	259.20 lbs.
				1.750 (1 3/4")	24" x 72"	25.20 lbs.	302.40 lbs.
				2.000 (2")	24" x 72"	28.80 lbs.	345.60 lbs.

Oiled for surface protection. Stenciled with Alloy and Temper Designation for identification.
5/8" and lighter—sheared edge. 3/4" to 2"—sawed edge.

24S-T3 ALCLAD ALUMINUM SHEETS

(Former Designation—24ST Alclad)

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.016 (No. 26)	36" x 144"	.229 lbs.	8.24 lbs.	.081 (No. 12)	48" x 144"	1.16 lbs.	55.68 lbs.
.020 (No. 24)	36" x 144"	.289 lbs.	10.40 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.025 (No. 22)	48" x 144"	.364 lbs.	17.48 lbs.	.102 (No. 10)	48" x 144"	1.47 lbs.	70.56 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.156 (5/32")	48" x 144"	2.25 lbs.	108.00 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.188 (3/16")	48" x 144"	2.70 lbs.	129.60 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.250 (*1/4")	48" x 144"	3.60 lbs.	172.80 lbs.
.072 (No. 13)	48" x 144"	1.040 lbs.	49.92 lbs.				

*1/4" thick is 24S-T4 Alclad Plate.

Paper interleaved for surface protection.

Stenciled with Alloy and Temper Designation for identification.

75S-O ALCLAD ALUMINUM SHEETS

Mill Finish

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.025 (No. 22)	36" x 144"	.364 lbs.	13.10 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.102 (No. 10)	48" x 144"	1.47 lbs.	70.56 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.156 (5/32")	48" x 144"	2.25 lbs.	108.00 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.188 (3/16")	48" x 144"	2.70 lbs.	129.60 lbs.
.072 (No. 13)	48" x 144"	1.040 lbs.	49.92 lbs.	.250 (1/4")	48" x 144"	3.60 lbs.	172.80 lbs.
.081 (No. 12)	48" x 144"	1.160 lbs.	55.68 lbs.				

Paper interleaved for surface protection. Stenciled with Alloy and Temper Designation for identification.

For economy and appearance, and to safeguard against corrosion, "Fasten Aluminum with Aluminum!"



SHEET • PLATES • SHEETS • ROLLS

75S-T6 BARE ALUMINUM PLATES

(Former Designation—75ST)

Mill Finish

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.250 (1/4")	48" x 144"	3.60 lbs.	172.80 lbs.	1.000 (1")	36" x 96"	14.40 lbs.	345.60 lbs.
.375 (3/8")	36" x 96"	5.40 lbs.	129.60 lbs.	1.500 (1 1/2")	24" x 72"	21.60 lbs.	259.20 lbs.
.500 (1/2")	36" x 96"	7.20 lbs.	172.80 lbs.	2.000 (2")	24" x 72"	28.80 lbs.	345.60 lbs.
.750 (3/4")	36" x 96"	10.80 lbs.	259.20 lbs.				

Oiled for surface protection. 3/8" and lighter, sheared—1/2" and heavier, sawed.
Stenciled with Alloy and Temper Designation for identification.

75S-T6 ALCLAD ALUMINUM SHEETS

(Former Designation—75ST Alclad)

Mill Finish

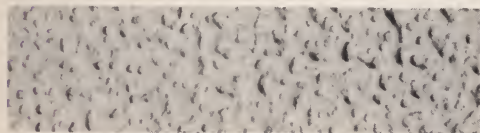
THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	36" x 144"	.289 lbs.	10.40 lbs.	.081 (No. 12)	48" x 144"	1.16 lbs.	55.68 lbs.
.025 (No. 22)	36" x 144"	.364 lbs.	13.10 lbs.	.091 (No. 11)	48" x 144"	1.31 lbs.	62.88 lbs.
.032 (No. 20)	48" x 144"	.461 lbs.	22.12 lbs.	.102 (No. 10)	48" x 144"	1.47 lbs.	70.56 lbs.
.040 (No. 18)	48" x 144"	.580 lbs.	27.84 lbs.	.125 (1/8")	48" x 144"	1.80 lbs.	86.40 lbs.
.051 (No. 16)	48" x 144"	.732 lbs.	35.15 lbs.	.156 (3/16")	48" x 144"	2.25 lbs.	108.00 lbs.
.064 (No. 14)	48" x 144"	.923 lbs.	44.30 lbs.	.188 (1/4")	48" x 144"	2.70 lbs.	129.60 lbs.
.072 (No. 13)	48" x 144"	1.040 lbs.	49.92 lbs.	.250 (1/2")	48" x 144"	3.60 lbs.	172.80 lbs.

Paper interleaved for surface protection.

Stenciled with Alloy and Temper Designation for identification.

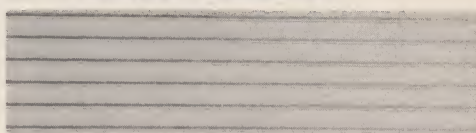
3S-H11 ALCOA ALUMINUM PATTERN SHEETS

A general purpose sheet for architectural and other decorative applications



Stucco Pattern—Design E5

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.020 (No. 24)	24" x 120"	.284 lbs.	5.68 lbs.
.025 (No. 22)	24" x 120"	.357 lbs.	7.14 lbs.
.032 (No. 20)	24" x 120"	.452 lbs.	9.04 lbs.
.040 (No. 18)	24" x 120"	.569 lbs.	11.38 lbs.



Fluted Pattern—Design No. 10

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.040 (No. 18)	48" x 144"	.569 lbs.	27.31 lbs.
.051 (No. 16)	48" x 144"	.717 lbs.	34.42 lbs.
.064 (No. 14)	48" x 144"	.905 lbs.	43.44 lbs.

For Pattern Sheets with other designs consult with our nearest office.

61S-T6 ALUMINUM TREAD PLATES

(Former Designation—61ST)

Pattern No. C-102—Mill Finish

Length of diamond 1 3/16" max.

Width of diamond at center 1 1/2" max.



THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.125 (1/8")	48" x 192"	1.9 lbs.	121.60 lbs.	.250 (1/4")	48" x 192"	3.7 lbs.	236.80 lbs.
.188 (3/16")	48" x 192"	2.8 lbs.	179.20 lbs.		60" x 192"		296.00 lbs.
	60" x 192"		224.00 lbs.				

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAIN-
LESS

CLAD
METALS

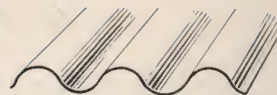
MISC.
SHEET

ALUMI-
NUM

ALUMINUM INDUSTRIAL ROOFING & SIDING SHEETS—CORRUGATED

Corrugation—2.67" Pitch and $\frac{7}{8}$ " Depth

Made especially for industrial construction, needs no painting or regular maintenance



ROOFING SHEETS

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	COVERAGE Per Sheet	APPROX. WEIGHT Per Sheet	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	COVERAGE Per Sheet	APPROX. WEIGHT Per Sheet
.032 (No. 20)	35" x 60"	14.48 sq. ft.	8.12 lbs.	.032 (No. 20)	35" x 108"	26.07 sq. ft.	14.61 lbs.
.032 (No. 20)	35" x 72"	17.37 sq. ft.	9.73 lbs.	.032 (No. 20)	35" x 120"	28.94 sq. ft.	16.20 lbs.
.032 (No. 20)	35" x 84"	20.27 sq. ft.	11.37 lbs.	.032 (No. 20)	35" x 132"	31.85 sq. ft.	17.84 lbs.
.032 (No. 20)	35" x 96"	23.16 sq. ft.	12.97 lbs.	.032 (No. 20)	35" x 144"	34.72 sq. ft.	19.44 lbs.

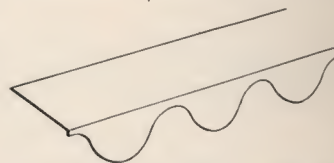
SIDING SHEETS

.032 (No. 20)	33 $\frac{3}{4}$ " x 60"	13.92 sq. ft.	7.80 lbs.	.032 (No. 20)	33 $\frac{3}{4}$ " x 108"	25.11 sq. ft.	14.06 lbs.
.032 (No. 20)	33 $\frac{3}{4}$ " x 72"	16.74 sq. ft.	9.38 lbs.	.032 (No. 20)	33 $\frac{3}{4}$ " x 120"	27.90 sq. ft.	15.62 lbs.
.032 (No. 20)	33 $\frac{3}{4}$ " x 84"	19.53 sq. ft.	10.94 lbs.	.032 (No. 20)	33 $\frac{3}{4}$ " x 132"	30.70 sq. ft.	17.19 lbs.
.032 (No. 20)	33 $\frac{3}{4}$ " x 96"	22.32 sq. ft.	12.50 lbs.	.032 (No. 20)	33 $\frac{3}{4}$ " x 144"	33.48 sq. ft.	18.76 lbs.

ALUMINUM CLOSURE STRIPS (WEATHERSEAL)

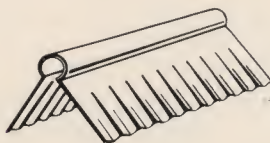
For use with Corrugated Siding and Roofing Sheets

45 Pieces to Carton. Weight per Carton 15 Pounds



THICKNESS Inches	LENGTH Inches	GIRTH Inches
.032	32	3" (2" x $\frac{29}{32}$ ")

ALUMINUM INDUSTRIAL RIDGE ROLLS— CORRUGATED AND PLAIN



Corrugated



Plain

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sheet
.032	19 $\frac{3}{16}$ " x 42"	2.52 lbs.	.032	20" x 96"	6.20 lbs.

Purlin Straps, Purlin Nails, Clips, Roofing Nails, Rivets, Neoprene Washers, Screws and Nuts for use with Aluminum Roofing Sheets are listed in FASTENERS SECTION.

Write for Engineering and Application Data. Free book gives detailed information on engineering and erecting buildings, using Alcoa Industrial Roofing & Siding Sheet.

INDEX—BRASS • BRONZE • COPPER • SHEET

BRASS	Page No.	NICKEL SILVER	Page No.
Soft Brass in Rolls.....	28	18% Nickel Silver in Rolls—Soft.....	30
Soft Reflector Brass in Rolls.....	28	18% Nickel Silver in Rolls—Spring...	30
Half Hard Brass in Rolls.....	29	Quarter Hard 18% Nickel Silver	
Half Hard Hoop (Slit) Brass in Rolls...	29	Sheets	35
Half Hard Brass Strips.....	33		
Spring Brass in Rolls.....	29		
Half Hard Brass Sheets.....	31-32	COPPER	
Cold Rolled Muntz Metal Sheets.....	34	Cold Rolled Copper in Rolls.....	35
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		Rolls.....	35
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Hard.....	34	One Side, Polished One Side.....	36
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Bronze in Rolls.....	31	Sheets—Rough Lead Coated Both	
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Bronze Sheets.....	33		

Anaconda sheet metals are manufactured in all of the copper and copper alloys. Warehouse stock items are listed on the following pages. Many special compositions are available from the mill. They are produced in a wide range of thicknesses, widths, lengths, tempers and finishes.

Anaconda Sheet Copper is highly ductile and malleable, making it particularly well adapted for drawing, stamping, forming and other severe cold working operations.

The various Anaconda Brasses stocked by Whitehead closely resemble each other in physical characteristics. In general, corrosion-resistance increases in proportion to copper content, whereas strength, hardness and wearing qualities increase in proportion to the zinc content. However, because of the wide range of Anaconda Copper and Copper Alloys available, the use of the correct alloy can improve the quality of the product or reduce the cost of making it...or both. To assist you in your sheet metal selection, literature is available from the Whitehead office nearest you.

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN-
LESS

GLAD
METALS

MISC.
SHEET

ROLLS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTEN-
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

WAX



←
ALUMI-
NUM

BRASS
BRONZE
COPPER

SOFT BRASS IN ROLLS

About 150 to 175 Pounds Each

Spinning and Drawing Quality

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
*.003 (No. 40)	6"	.068 lbs.	.020 (No. 24)	6"	.443 lbs.	.032 (No. 20)	4"	.470 lbs.
*.004 (No. 38)	6"	.088 lbs.		6½"	.480 lbs.		5"	.588 lbs.
*.005 (No. 36)	6"	.110 lbs.		7"	.517 lbs.		5½"	.647 lbs.
	12"	.220 lbs.		7½"	.554 lbs.		6"	.705 lbs.
*.006 (No. 34)	6"	.139 lbs.		8"	.591 lbs.		6½"	.763 lbs.
	12"	.278 lbs.		8½"	.627 lbs.		7"	.823 lbs.
*.008 (No. 32)	8"	.235 lbs.		9"	.664 lbs.		7½"	.881 lbs.
	12"	.353 lbs.		9½"	.701 lbs.		8"	.940 lbs.
.010 (No. 30)	6"	.220 lbs.		10"	.738 lbs.		8½"	1.000 lbs.
	8"	.294 lbs.		11"	.812 lbs.		9"	1.058 lbs.
	10"	.367 lbs.		12"	.886 lbs.		10"	1.175 lbs.
	12"	.441 lbs.		14"	1.033 lbs.		11"	1.293 lbs.
	14"	.514 lbs.		16"	1.181 lbs.		12"	1.410 lbs.
				18"	1.329 lbs.		13"	1.528 lbs.
				24"	1.771 lbs.		14"	1.645 lbs.
.012 (No. 28)	6"	.278 lbs.	.022 (No. 23)	5"	.415 lbs.		16"	1.880 lbs.
	8"	.370 lbs.		5½"	.456 lbs.		18"	2.116 lbs.
	10"	.463 lbs.		6"	.498 lbs.		20"	2.350 lbs.
	12"	.555 lbs.		6½"	.539 lbs.		24"	2.820 lbs.
	14"	.648 lbs.		7"	.581 lbs.	.036 (No. 19)	10"	1.318 lbs.
	18"	.833 lbs.		8"	.664 lbs.		12"	1.582 lbs.
	20"	.925 lbs.		8½"	.706 lbs.		14"	1.846 lbs.
.016 (No. 26)	5"	.292 lbs.		9"	.747 lbs.			
	5½"	.321 lbs.		10"	.830 lbs.	.040 (No. 18)	6"	.888 lbs.
	6"	.350 lbs.		12"	1.000 lbs.		8"	1.184 lbs.
	6½"	.379 lbs.		14"	1.162 lbs.		10"	1.480 lbs.
	7"	.409 lbs.	.025 (No. 22)	4"	.372 lbs.		12"	1.776 lbs.
	7½"	.438 lbs.		5"	.465 lbs.		14"	2.072 lbs.
	8"	.467 lbs.		5½"	.511 lbs.		16"	2.368 lbs.
	8½"	.496 lbs.		6"	.557 lbs.		18"	2.664 lbs.
	9"	.526 lbs.		6½"	.604 lbs.		20"	2.960 lbs.
	10"	.584 lbs.		7"	.650 lbs.		22"	3.256 lbs.
	12"	.701 lbs.		7½"	.697 lbs.		24"	3.552 lbs.
	14"	.817 lbs.		8"	.743 lbs.	.050 (No. 16)	6"	1.119 lbs.
	16"	.934 lbs.		8½"	.790 lbs.		8"	1.492 lbs.
	18"	1.051 lbs.		9"	.836 lbs.		10"	1.865 lbs.
.018 (No. 25)	6"	.394 lbs.		10"	.929 lbs.		12"	2.238 lbs.
	8"	.526 lbs.		11"	1.022 lbs.		14"	2.612 lbs.
	9"	.592 lbs.		12"	1.115 lbs.		16"	2.984 lbs.
	10"	.657 lbs.		14"	1.301 lbs.		18"	3.358 lbs.
	12"	.789 lbs.		16"	1.487 lbs.		20"	3.730 lbs.
	14"	.920 lbs.		18"	1.672 lbs.		24"	4.476 lbs.
.020 (No. 24)	4"	.295 lbs.	.028 (No. 21)	8"	.837 lbs.	.064 (No. 14)	6"	1.412 lbs.
	5"	.369 lbs.		10"	1.047 lbs.		8"	1.883 lbs.
	5½"	.406 lbs.		12"	1.256 lbs.		10"	2.354 lbs.
				14"	1.465 lbs.		12"	2.825 lbs.
							14"	3.296 lbs.

*Carried in rolls approximately 75 pounds.

SOFT REFLECTOR BRASS IN ROLLS

Deep Drawing Quality

Approximately 75-Pound Rolls

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.016 (No. 26)	12"	.701 lbs.	.025 (No. 22)	10"	.929 lbs.	.032 (No. 20)	12"	1.410 lbs.
.020 (No. 24)	10"	.738 lbs.		12"	1.115 lbs.		14"	1.645 lbs.
	12"	.886 lbs.		14"	1.301 lbs.	.040 (No. 18)	10"	1.480 lbs.
	14"	1.033 lbs.	.032 (No. 20)	8"	.940 lbs.		12"	1.776 lbs.
.025 (No. 22)	8"	.743 lbs.		10"	1.175 lbs.		14"	2.072 lbs.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

HALF HARD BRASS IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.012 (No. 28)	12"	.555 lbs.	.025 (No. 22)	10"	.929 lbs.
	14"	.648 lbs.		12"	1.115 lbs.
.016 (No. 26)	12"	.701 lbs.		14"	1.301 lbs.
	14"	.816 lbs.	.032 (No. 20)	10"	1.175 lbs.
.020 (No. 24)	10"	.738 lbs.		12"	1.410 lbs.
	12"	.886 lbs.		14"	1.645 lbs.
	14"	1.033 lbs.			

HALF HARD HOOP (SLIT) BRASS IN ROLLS

About 10 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per 100 Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per 100 Ft.
.016 (No. 26)	3/8"	2.19 lbs.	.032 (No. 20)	3/8"	7.34 lbs.
	1/2"	2.92 lbs.		3/4"	8.81 lbs.
	5/8"	3.65 lbs.		1"	11.75 lbs.
	3/4"	4.38 lbs.		1 1/4"	14.69 lbs.
	1"	5.84 lbs.		1 1/2"	17.63 lbs.
	1 1/4"	7.29 lbs.		1 3/4"	20.56 lbs.
	1 1/2"	8.76 lbs.		2"	23.50 lbs.
	1 3/4"	10.22 lbs.	.040 (No. 18)	3/8"	5.55 lbs.
.020 (No. 24)	2"	11.68 lbs.		1/2"	7.40 lbs.
	3/8"	2.77 lbs.		5/8"	9.25 lbs.
	1/2"	3.69 lbs.		3/4"	11.10 lbs.
	5/8"	4.61 lbs.		1"	14.80 lbs.
	3/4"	5.54 lbs.		1 1/4"	18.50 lbs.
	1"	7.38 lbs.		1 1/2"	22.20 lbs.
	1 1/4"	9.23 lbs.		1 3/4"	25.90 lbs.
	1 1/2"	11.07 lbs.	.050 (No. 16)	2"	29.60 lbs.
.025 (No. 22)	1 3/4"	12.92 lbs.		3/8"	7.00 lbs.
	2"	14.76 lbs.		1/2"	9.33 lbs.
	3/8"	3.49 lbs.		5/8"	11.66 lbs.
	1/2"	4.66 lbs.		3/4"	13.99 lbs.
	5/8"	5.81 lbs.		1"	18.65 lbs.
	3/4"	6.97 lbs.		1 1/4"	23.32 lbs.
	1"	9.30 lbs.		1 1/2"	28.00 lbs.
	1 1/4"	11.61 lbs.	.064 (No. 14)	2"	37.31 lbs.
.032 (No. 20)	1 1/2"	13.94 lbs.		3/8"	8.83 lbs.
	1 3/4"	16.26 lbs.		1/2"	11.77 lbs.
	2"	18.58 lbs.		5/8"	14.71 lbs.
	1/4"	2.94 lbs.		3/4"	17.65 lbs.
	3/8"	4.41 lbs.		1"	23.54 lbs.
	1/2"	5.88 lbs.			

For brass slit to requirements from standard sheet or roll, see "Slitting Facilities," Page 13.

SPRING BRASS IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.006 (No. 34)	8"	.185 lbs.	.025 (No. 22)	8"	.743 lbs.
.008 (No. 32)	8"	.235 lbs.	.032 (No. 20)	8"	.940 lbs.
.010 (No. 30)	8"	.294 lbs.	.040 (No. 18)	8"	1.184 lbs.
.012 (No. 28)	8"	.370 lbs.	.050 (No. 16)	8"	1.492 lbs.
.016 (No. 26)	8"	.467 lbs.	.064 (No. 14)	8"	1.883 lbs.
.020 (No. 24)	8"	.591 lbs.			

For Brass, Bronze and Copper Welding, Brazing or Soldering Materials, see **WELDING SECTION.**

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
ANTI
BRAZING

SPECIAL
PROD.
ITEMS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET


 ←
 ALUMI
 NUM

SOFT RICH LOW BRASS IN ROLLS

(85% Copper)

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.012 (No. 28)	10"	.477 lbs.	.025 (No. 22)	10"	.957 lbs.
	12"	.572 lbs.		12"	1.148 lbs.
	14"	.667 lbs.		14"	1.340 lbs.
.016 (No. 26)	6"	.361 lbs.	.032 (No. 20)	6"	.726 lbs.
	8"	.481 lbs.		8"	.968 lbs.
	10"	.601 lbs.		10"	1.210 lbs.
	12"	.722 lbs.		12"	1.452 lbs.
	14"	.842 lbs.		14"	1.694 lbs.
.020 (No. 24)	6"	.456 lbs.	.040 (No. 18)	6"	.915 lbs.
	8"	.608 lbs.		10"	1.524 lbs.
	10"	.760 lbs.		12"	1.829 lbs.
	14"	.912 lbs.		14"	2.134 lbs.
.025 (No. 22)	6"	.574 lbs.	.050 (No. 16)	6"	1.153 lbs.
	8"	.765 lbs.	.064 (No. 14)	6"	1.454 lbs.

SOFT COMMERCIAL BRONZE IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.012 (No. 28)	14"	.674 lbs.	.032 (No. 20)	6"	.74 lbs.
.016 (No. 26)	14"	.850 lbs.		10"	1.23 lbs.
.020 (No. 24)	6"	.461 lbs.		12"	1.47 lbs.
	10"	.768 lbs.		14"	1.71 lbs.
	12"	.921 lbs.	.040 (No. 18)	6"	.93 lbs.
	14"	1.060 lbs.		10"	1.54 lbs.
.025 (No. 22)	6"	.580 lbs.		12"	1.85 lbs.
	10"	.970 lbs.		14"	2.16 lbs.
	12"	1.160 lbs.	.050 (No. 16)	6"	1.16 lbs.
	14"	1.353 lbs.		12"	2.33 lbs.
				14"	2.72 lbs.
				16"	3.10 lbs.
			.064 (No. 14)	6"	1.47 lbs.

SOFT 18% NICKEL SILVER IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.010 (No. 30)	6"	.228 lbs.	.025 (No. 22)	6"	.576 lbs.
.012 (No. 28)	6"	.287 lbs.		8"	.767 lbs.
	8"	.382 lbs.		12"	1.151 lbs.
.014 (No. 27)	6"	.323 lbs.	.032 (No. 20)	6"	.728 lbs.
	6"	.362 lbs.		8"	.971 lbs.
.016 (No. 26)	8"	.482 lbs.		12"	1.456 lbs.
.018 (No. 25)	6"	.407 lbs.	.040 (No. 18)	6"	.917 lbs.
.020 (No. 24)	6"	.457 lbs.		8"	1.223 lbs.
	8"	.610 lbs.		12"	1.834 lbs.
.022 (No. 23)	6"	.514 lbs.	.050 (No. 16)	6"	1.156 lbs.
				6"	1.459 lbs.
			.064 (No. 14)	6"	

SPRING 18% NICKEL SILVER IN ROLLS

150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.010 (No. 30)	6"	.228 lbs.	.020 (No. 24)	6"	.457 lbs.
.012 (No. 28)	6"	.287 lbs.		6"	.576 lbs.
.016 (No. 26)	6"	.362 lbs.			

Intermediate sizes may be obtained by slitting to width. See page 13.

BRASS
BRONZE
COPPER

GRADE "A" SPRING PHOSPHOR BRONZE IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
*.005 (No. 36)	6"	.116 lbs.	.018 (No. 25)	6"	.412 lbs.
*.006 (No. 34)	6"	.145 lbs.	.020 (No. 24)	6"	.462 lbs.
.008 (No. 32)	6"	.184 lbs.	.022 (No. 23)	6"	.520 lbs.
.010 (No. 30)	6"	.230 lbs.	.025 (No. 22)	6"	.582 lbs.
.012 (No. 28)	6"	.290 lbs.	.028 (No. 21)	6"	.653 lbs.
.014 (No. 27)	6"	.327 lbs.	.032 (No. 20)	6"	.737 lbs.
.016 (No. 26)	6"	.366 lbs.			

*Carried in rolls approximately 75 lbs.

For heavier gauges see Grade "A" Spring Phosphor Bronze Sheet.

SOFT ACID DIPPED BRONZE FOR TRIM IN ROLLS

About 150 to 175 Pounds Each

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.012 (No. 28)	14"	.670 lbs.	.022 (No. 23)	10"	.855 lbs.
.016 (No. 26)	10"	.600 lbs.		12"	1.026 lbs.
	12"	.720 lbs.		14"	1.197 lbs.
	14"	.842 lbs.	.025 (No. 22)	12"	1.148 lbs.
.020 (No. 24)	12"	.912 lbs.		14"	1.339 lbs.
			.032 (No. 20)	12"	1.452 lbs.
				14"	1.694 lbs.

HALF HARD BRASS SHEETS

In Random 6- to 8-Foot Lengths

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.012 (No. 28)	10"	.463 lbs.	.032 (No. 20)	14"	1.645 lbs.
	12"	.555 lbs.		16"	1.880 lbs.
.016 (No. 26)	6"	.350 lbs.	.036 (No. 19)	6"	.791 lbs.
	8"	.467 lbs.		10"	1.318 lbs.
	10"	.584 lbs.		12"	1.582 lbs.
	12"	.701 lbs.		14"	1.846 lbs.
	14"	.817 lbs.	.040 (No. 18)	6"	.888 lbs.
	24"†	1.401 lbs.		8"	1.184 lbs.
.020 (No. 24)	6"	.443 lbs.		10"	1.480 lbs.
	8"	.591 lbs.		12"	1.776 lbs.
	10"	.738 lbs.		14"	2.072 lbs.
	12"	.886 lbs.		16"	2.368 lbs.
	14"	1.033 lbs.	.045 (No. 17)	6"	.998 lbs.
	18"	1.329 lbs.		8"	1.331 lbs.
	24"†	1.772 lbs.		10"	1.663 lbs.
.025 (No. 22)	6"	.557 lbs.		12"	1.996 lbs.
	8"	.743 lbs.		14"	2.328 lbs.
	10"	.929 lbs.	.050 (No. 16)	6"	1.119 lbs.
	12"	1.115 lbs.		8"	1.492 lbs.
	14"	1.301 lbs.		10"	1.865 lbs.
	16"	1.486 lbs.		12"	2.238 lbs.
	18"	1.672 lbs.		14"	2.612 lbs.
	24"†	2.230 lbs.		16"	2.984 lbs.
.032 (No. 20)	6"	.705 lbs.		18"	3.358 lbs.
	8"	.940 lbs.	.057 (No. 15)	12"	2.516 lbs.
	10"	1.175 lbs.		14"	2.936 lbs.
	12"	1.410 lbs.			

Items marked "†" are in 4-foot exact lengths.

(Continued on next page)

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

PASTE
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN
LESS

CLAD
METALS

MISC.
SHEET

HALF HARD BRASS SHEETS—Continued

THICKNESS		WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS		WIDTH Inches	APPROX. WT. Per Lin. Ft.
Inches	B&S Gauge			Inches	B&S Gauge		
.064	(No. 14)	6"	1.412 lbs.	.187	(3/16")	6"	4.131 lbs.
		8"	1.883 lbs.			8"	5.508 lbs.
		10"	2.354 lbs.			10"	6.885 lbs.
		12"	2.825 lbs.			12"	8.262 lbs.
		14"	3.296 lbs.			14"	9.639 lbs.
		16"	3.766 lbs.	.250	(1/4")	6"	5.510 lbs.
						8"	7.347 lbs.
						10"	9.183 lbs.
						12"	11.020 lbs.
						14"	12.860 lbs.
.072	(No. 13)	12"	3.173 lbs.			16"	14.690 lbs.
		14"	3.702 lbs.			18"	16.530 lbs.
.081	(No. 12)	6"	1.780 lbs.			6"	6.890 lbs.
		8"	2.374 lbs.			8"	9.180 lbs.
		10"	2.967 lbs.			10"	11.480 lbs.
		12"	3.560 lbs.			12"	13.770 lbs.
		14"	4.154 lbs.	.312	(5/16")	6"	8.235 lbs.
		16"	4.748 lbs.			8"	11.010 lbs.
						10"	13.770 lbs.
						12"	16.520 lbs.
						14"	19.270 lbs.
.091	(No. 11)	6"	1.998 lbs.			16"	22.020 lbs.
		8"	2.664 lbs.			18"	24.780 lbs.
		10"	3.331 lbs.	.375	(3/8")	6"	11.020 lbs.
		12"	3.997 lbs.			8"	14.690 lbs.
		14"	4.662 lbs.			10"	18.360 lbs.
		16"	5.328 lbs.			12"	22.030 lbs.
		18"	5.994 lbs.			14"	25.700 lbs.
.102	(No. 10)	6"	2.245 lbs.			16"	22.020 lbs.
		8"	2.993 lbs.	.500	(1/2")	18"	24.780 lbs.
		10"	3.742 lbs.			6"	11.020 lbs.
		12"	4.490 lbs.			8"	14.690 lbs.
		14"	5.238 lbs.			10"	18.360 lbs.
.125	(5/8")	6"	2.754 lbs.			12"	22.030 lbs.
		8"	3.672 lbs.	.625	(5/8")	14"	25.700 lbs.
		10"	4.590 lbs.			6"	13.770 lbs.
		12"	5.508 lbs.			8"	22.950 lbs.
		14"	6.426 lbs.			10"	27.540 lbs.
		16"	7.344 lbs.			12"	32.130 lbs.
				.750	(3/4")	14"	33.050 lbs.
						16"	34.060 lbs.
.156	(7/8")	12"	6.885 lbs.			18"	44.060 lbs.

*1/4" x 12" also carried in stock in Half Hard Engravers Brass Quality.

1/4" and thicker in random 4- to 6-foot lengths. For wider sheets, see Muntz Metal Page 34.

All Half Hard Brass Sheet 11 B&S and Heavier is leaded free cutting material.

QUARTER HARD ACID DIPPED BRONZE SHEETS

For Trim

THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH Inches	APPROX. WEIGHT	
Inches	B&S Gauge		Per Sq. Ft.	Per Sheet	Inches	B&S Gauge		Per Sq. Ft.	Per Sheet
.020	(No. 24)	36" x 96"	.92 lbs.	21.95 lbs.	.032	(No. 20)	20" x 96"	1.46 lbs.	19.41 lbs.
.022	(No. 23)	12" x 96"	1.03 lbs.	8.23 lbs.			20" x 120"		24.27 lbs.
		14" x 96"		9.60 lbs.			24" x 96"		23.30 lbs.
		16" x 96"		10.97 lbs.			24" x 120"		29.12 lbs.
		18" x 96"		12.34 lbs.			26" x 96"		25.24 lbs.
		20" x 96"		13.71 lbs.			30" x 96"		29.12 lbs.
		24" x 96"		16.45 lbs.			36" x 96"		34.94 lbs.
		24" x 120"		20.57 lbs.	.050	(No. 16)	16" x 96"	2.31 lbs.	24.65 lbs.
		30" x 96"		20.57 lbs.			16" x 120"		30.80 lbs.
.032	(No. 20)	12" x 96"	1.46 lbs.	11.65 lbs.			20" x 120"		38.52 lbs.
		14" x 96"		13.59 lbs.			24" x 96"		36.98 lbs.
		14" x 120"		16.99 lbs.			24" x 120"		46.22 lbs.
		16" x 96"		15.53 lbs.			30" x 96"		46.22 lbs.
		16" x 120"		19.41 lbs.			30" x 120"		57.78 lbs.
		18" x 96"		17.47 lbs.			36" x 96"		55.46 lbs.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

HALF HARD BRASS STRIPS AND BARS

In Random 8- to 12-Foot Lengths

ITEMS MARKED:

*DRAWN RODS, LEADED

***SHEARED STRIPS, LEADED

**SHEARED STRIPS, NON-LEADED

****SLIT EDGES, NON-LEADED

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/16" x 1/4"****	.058 lbs.	1/8" x 3/16"*	.086 lbs.	3/16" x 2 1/2"****	1.727 lbs.	3/8" x 3/4"*	1.036 lbs.
x 5/16"****	.072 lbs.	x 1/4"*	.115 lbs.	x 3"***	2.072 lbs.	x 7/8"*	1.209 lbs.
x 3/8"***	.086 lbs.	x 5/8"*	.144 lbs.	x 4"***	2.763 lbs.	x 1"*	1.382 lbs.
x 1/2"***	.115 lbs.	x 3/4"*	.173 lbs.	x 5"***	3.454 lbs.	x 1 1/4"*	1.727 lbs.
x 5/8"***	.144 lbs.	x 1/2"*	.230 lbs.			x 1 1/2"*	2.072 lbs.
x 3/4"***	.173 lbs.	x 5/8"*	.288 lbs.	1/4" x 3/16"*	.288 lbs.	x 1 3/4"*	2.418 lbs.
x 7/8"***	.201 lbs.	x 3/4"*	.345 lbs.	x 3/8"*	.345 lbs.	x 2"*	2.763 lbs.
x 1"***	.230 lbs.	x 7/8"*	.403 lbs.	x 1/2"*	.460 lbs.	x 2 1/2"*	3.454 lbs.
x 1 1/8"***	.259 lbs.	x 1"*	.460 lbs.	x 5/8"*	.576 lbs.	x 3"*	4.145 lbs.
x 1 1/4"***	.288 lbs.	x 1 1/8"*	.518 lbs.	x 3/4"*	.691 lbs.	x 3 1/2"*	4.835 lbs.
x 1 1/2"***	.345 lbs.	x 1 1/4"*	.576 lbs.	x 7/8"*	.806 lbs.	x 4"*	5.526 lbs.
x 1 3/4"***	.403 lbs.	x 1 1/2"*	.691 lbs.	x 1"*	.921 lbs.	x 5"*(sawed)	6.908 lbs.
x 2"***	.460 lbs.	x 1 3/4"*	.806 lbs.	x 1 1/8"*	1.036 lbs.		
x 2 1/2"***	.575 lbs.	x 2"*	.921 lbs.	x 1 1/4"*	1.151 lbs.	1/2" x 5/8"*	1.152 lbs.
x 3"***	.691 lbs.	x 2 1/4"****	1.036 lbs.	x 1 1/2"*	1.382 lbs.	x 3/4"*	1.382 lbs.
x 4"***	.921 lbs.	x 2 1/2"****	1.151 lbs.	x 1 3/4"*	1.612 lbs.	x 1"*	1.842 lbs.
x 5"***	1.152 lbs.	x 3"***	1.382 lbs.	x 2"*	1.842 lbs.	x 1 1/4"*	2.303 lbs.
		x 3 1/2"****	1.612 lbs.	x 2 1/4"*	2.072 lbs.	x 1 1/2"*	2.763 lbs.
3/32" x 1/4"*	.086 lbs.	x 4"***	1.842 lbs.	x 2 1/2"*	2.303 lbs.	x 1 3/4"*	3.224 lbs.
x 3/8"*	.129 lbs.	x 5"***	2.303 lbs.	x 3"*	2.763 lbs.	x 2"*	3.684 lbs.
x 1/2"*	.173 lbs.			x 3 1/2"*	3.224 lbs.	x 2 1/2"*	4.605 lbs.
x 5/8"*	.216 lbs.	3/16" x 1/4"*	.173 lbs.	x 4"*	3.684 lbs.	x 3"*	5.526 lbs.
x 3/4"*	.259 lbs.	x 5/16"*	.216 lbs.	x 5"*	4.605 lbs.	x 4"*	7.368 lbs.
x 7/8"*	.302 lbs.	x 3/8"*	.259 lbs.				
x 1"*	.345 lbs.	x 1/2"*	.345 lbs.	5/16" x 1/2"*	.576 lbs.	5/8" x 3/4"*	1.727 lbs.
x 1 1/4"****	.432 lbs.	x 5/8"*	.432 lbs.	x 3/8"*	.720 lbs.	x 7/8"*	2.016 lbs.
x 1 1/2"****	.518 lbs.	x 3/4"*	.518 lbs.	x 3/4"*	.864 lbs.	x 1"*	2.303 lbs.
x 2"***	.691 lbs.	x 7/8"*	.604 lbs.	x 7/8"*	1.007 lbs.	x 1 1/4"*	2.879 lbs.
x 2 1/4"****	.777 lbs.	x 1"*	.691 lbs.	x 1"*	1.151 lbs.	x 1 1/2"*	3.454 lbs.
x 2 1/2"****	.863 lbs.	x 1 1/4"*	.863 lbs.	x 1 1/2"*	1.727 lbs.	x 2"*	4.605 lbs.
x 3"***	1.036 lbs.	x 1 1/2"*	1.036 lbs.	x 2"*	2.303 lbs.		
x 4"***	1.382 lbs.	x 1 3/4"*	1.209 lbs.	x 3"*	3.454 lbs.	3/4" x 1"*	2.763 lbs.
x 5"***	1.727 lbs.	x 2"*	1.382 lbs.			x 1 1/4"*	3.454 lbs.
		x 2 1/4"****	1.554 lbs.	3/8" x 1/2"*	.691 lbs.	x 1 1/2"*	4.145 lbs.
				x 5/8"*	.864 lbs.	x 1 3/4"*	4.835 lbs.

EMBOSSED BRASS

Ornamental and Fancy Patterns In Standard or New Designs

A booklet showing patterns available at our Mill will be sent upon request. Embossed Metal also made of Copper, Nickel Silver, Red Brass and Commercial Bronze.

GRADE "A" SPRING PHOSPHOR BRONZE SHEETS

In Random 6- to 8-Foot Lengths

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.040 (No. 18)	6"	.928 lbs.	.091 (No. 11)	6"	2.088 lbs.
.050 (No. 16)	6"	1.170 lbs.	.102 (No. 10)	6"	2.346 lbs.
.064 (No. 14)	6"	1.476 lbs.	.128 (No. 8)	6"	2.958 lbs.
.081 (No. 12)	6"	1.860 lbs.			

BRASS PRODUCTS

For Prompt Shipment from Mill

EMBOSSED BRASS ENGRAVERS' BRASS THIN GAUGE BRASS SIGN BRASS

ETCHING BRASS SOFT SHIM BRASS BRASS PLATERS' METAL

Advise Your Special Requirements

For Brass, Bronze and Copper Welding, Brazing or Soldering Materials, see **WELDING SECTION.**

RODS

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PIPE
FITS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUMBRASS
BRONZE
COPPER

HALF HARD COMMERCIAL BRONZE SHEETS

20 Inches and Wider, 96 Inches Long, Under 20 Inches Wide, Random 7- to 8-Foot Lengths

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.032 (No. 20)	8"	.98 lbs.	.081 (No. 12)	12"	3.70 lbs.
	12"	1.47 lbs.		14"	4.32 lbs.
	24"	2.94 lbs.		24"	7.40 lbs.
	30"	3.67 lbs.		30"	9.25 lbs.
.040 (No. 18)	8"	1.23 lbs.	.091 (No. 11)	8"	2.77 lbs.
	10"	1.54 lbs.		10"	3.47 lbs.
	12"	1.85 lbs.		12"	4.16 lbs.
	24"	3.70 lbs.		14"	4.85 lbs.
	30"	4.62 lbs.		18"	6.24 lbs.
.050 (No. 16)	6"	1.16 lbs.	.102 (No. 10)	20"	6.94 lbs.
	8"	1.55 lbs.		24"	8.32 lbs.
	10"	1.94 lbs.	.125 (1/8")	30"	10.41 lbs.
	12"	2.33 lbs.		6"	2.33 lbs.
	14"	2.72 lbs.		24"	9.34 lbs.
	16"	3.10 lbs.		6"	2.87 lbs.
	18"	3.49 lbs.		8"	3.82 lbs.
	20"	3.88 lbs.		10"	4.77 lbs.
.064 (No. 14)	24"	4.65 lbs.		12"	5.73 lbs.
	6"	1.47 lbs.	.187 (3/16")	14"	6.68 lbs.
	8"	1.96 lbs.		18"	8.59 lbs.
	10"	2.45 lbs.		20"	9.54 lbs.
	12"	2.94 lbs.		24"	11.46 lbs.
	14"	3.43 lbs.	.250 (1/4")	30"	14.32 lbs.
	18"	4.41 lbs.		8"	5.73 lbs.
	20"	4.90 lbs.		12"	8.59 lbs.
.081 (No. 12)	24"	5.88 lbs.		24"	17.18 lbs.
	30"	7.35 lbs.			
	6"	1.85 lbs.			
	10"	3.08 lbs.			

COLD ROLLED MUNTZ METAL SHEETS

For architectural and general purpose applications

THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	THICKNESS Inches B&S Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.
.032 (No. 20)	24" x 48"	1.38 lbs.	.081 (No. 12)	30" x 144"	3.56 lbs.
	30" x 60"	11 lbs.		36" x 96"	106 lbs.
	30" x 96"	18 lbs.		36" x 120"	85 lbs.
	36" x 96"	28 lbs.		36" x 144"	106 lbs.
.040 (No. 18)	24" x 48"	1.75 lbs.	.091 (No. 11)	24" x 48"	127 lbs.
	30" x 60"	14 lbs.		30" x 60"	32 lbs.
	36" x 96"	22 lbs.		30" x 96"	50 lbs.
.045 (No. 17)	24" x 48"	2.00 lbs.		36" x 96"	80 lbs.
	30" x 60"	16 lbs.	.102 (No. 10)	36" x 96"	96 lbs.
.050 (No. 16)	24" x 48"	2.25 lbs.		24" x 48"	4.46 lbs.
	30" x 60"	18 lbs.		24" x 96"	107 lbs.
	36" x 96"	28 lbs.	.125 (1/8")	24" x 96"	44 lbs.
.064 (No. 14)	24" x 48"	2.75 lbs.		24" x 144"	88 lbs.
	24" x 96"	22 lbs.		30" x 60"	131 lbs.
	24" x 144"	45 lbs.		30" x 96"	69 lbs.
	30" x 60"	67 lbs.		30" x 144"	110 lbs.
	30" x 96"	35 lbs.	.187 (3/16")	36" x 96"	164 lbs.
	30" x 120"	56 lbs.		36" x 144"	131 lbs.
	30" x 144"	70 lbs.		48" x 96"	197 lbs.
	36" x 96"	84 lbs.		24" x 48"	176 lbs.
.081 (No. 12)	24" x 96"	3.56 lbs.	.250 (1/4")	30" x 60"	8.25 lbs.
	24" x 144"	57 lbs.		30" x 96"	66 lbs.
	30" x 96"	71 lbs.		30" x 144"	103 lbs.
			.375 (3/8")	24" x 48"	88 lbs.
				30" x 60"	137 lbs.
			.500 (1/2")	24" x 48"	16.38 lbs.
				24" x 48"	175 lbs.

Thicknesses .187 and lighter are suitable for bending.

For sheet thinner than 20 B&S (.032") see "Brass Sheet" on Page 31.

Special sheet sizes may be obtained by sawing or shearing. See page 13.

QUARTER HARD 18% NICKEL SILVER SHEETS

In Random 8-Foot Lengths

THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Sheet	THICKNESS Inches B&S Gauge	WIDTH Inches	APPROX. WT. Per Sheet
.025 (No. 22)	12"	9.25 lbs.	.064 (No. 14)	12"	23.50 lbs.
.032 (No. 20)	12"	11.75 lbs.	.090 (No. 11)	12"	33.00 lbs.
.040 (No. 18)	12"	14.75 lbs.	.125 (1/8")	12"	45.50 lbs.
.050 (No. 16)	12"	18.50 lbs.			

SOFT COPPER IN ROLLS

For Roofing

About 100 Pounds Each

THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.021 (16 oz.)	No. 23	6"	.500 lbs.	.021 (16 oz.)	No. 23	14"	1.167 lbs.
		7"	.583 lbs.			16"	1.334 lbs.
		8"	.667 lbs.			18"	1.500 lbs.
		10"	.833 lbs.			20"	1.667 lbs.
		12"	1.000 lbs.				

COLD ROLLED COPPER IN ROLLS

About 75 to 100 Pounds Each

THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.021 (16 oz.)	No. 23	5"	.417 lbs.	.021 (16 oz.)	No. 23	9"	.750 lbs.
		6"	.500 lbs.			10"	.833 lbs.
		7"	.583 lbs.			12"	1.000 lbs.
		8"	.667 lbs.				

COLD ROLLED ANNEALED COPPER IN ROLLS

About 100 Pounds Each

Suitable for Spinning and Stamping

THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.	THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH Inches	APPROX. WT. Per Lin. Ft.
.008 (6 oz.)	No. 32	12"	.375 lbs.	.024 (18 oz.)	No. 22	6"	.563 lbs.
.010 (8 oz.)	No. 30	12"	.500 lbs.			8"	.750 lbs.
.013 (10 oz.)	No. 27	12"	.625 lbs.			9"	.845 lbs.
.016 (12 oz.)	No. 26	6"	.375 lbs.			10"	.938 lbs.
		8"	.500 lbs.			12"	1.125 lbs.
		10"	.625 lbs.			14"	1.312 lbs.
		12"	.750 lbs.			16"	1.500 lbs.
		14"	.875 lbs.			18"	1.688 lbs.
.019 (14 oz.)	No. 25	10"	.729 lbs.	.027 (20 oz.)	No. 21	6"	.625 lbs.
		12"	.875 lbs.			10"	1.041 lbs.
		14"	1.021 lbs.			12"	1.250 lbs.
						14"	1.458 lbs.
.021 (16 oz.)	No. 23	4"	.333 lbs.	.032 (24 oz.)	No. 20	8"	1.000 lbs.
		5"	.417 lbs.			9"	1.125 lbs.
		6"	.500 lbs.			10"	1.250 lbs.
		7"	.583 lbs.			12"	1.500 lbs.
		8"	.667 lbs.			14"	1.750 lbs.
		9"	.750 lbs.			16"	2.000 lbs.
		10"	.833 lbs.			18"	2.250 lbs.
		12"	1.000 lbs.	.040 (30 oz.)	No. 18	12"	1.870 lbs.
		14"	1.166 lbs.			14"	2.188 lbs.
		15"	1.250 lbs.			16"	2.500 lbs.
		16"	1.333 lbs.	.043 (32 oz.)	No. 17	12"	2.000 lbs.
		18"	1.500 lbs.			14"	2.333 lbs.
		20"	1.667 lbs.				

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PROD.
UNITS

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN-
LESS

GLAD
METALS

MISC.
SHEET



COLD ROLLED ANNEALED COPPER SHEETS

Suitable for Spinning and Stamping

THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS Inches Ounces	NEAREST B&S Gauge	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
.027 (20 oz.)	No. 21	36" x 96"	30.00 lbs.	.043 (32 oz.)	No. 18	36" x 96"	48.00 lbs.
.032 (24 oz.)	No. 20	36" x 96"	36.00 lbs.				

COLD ROLLED COPPER SHEETS

Tinned One Side

THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
.019 (14 oz.)	36" x 96"	21.00 lbs.	.032 (24 oz.)	30" x 96"	30.00 lbs.
.021 (16 oz.)	24" x 96"	16.00 lbs.		36" x 96"	36.00 lbs.
	30" x 96"	20.00 lbs.		48" x 96"	48.00 lbs.
	36" x 96"	24.00 lbs.	.043 (32 oz.)	30" x 96"	40.00 lbs.
.024 (18 oz.)	36" x 96"	27.00 lbs.		36" x 96"	48.00 lbs.
.027 (20 oz.)	30" x 96"	25.00 lbs.		48" x 96"	64.00 lbs.
	36" x 96"	30.00 lbs.			

Tinned One Side—(Polished Other Side)

.032 (24 oz.)	30" x 96"	30.00 lbs.
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COLD ROLLED COPPER SHEETS

THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
.016 (12 oz.)	30" x 60"	9.38 lbs.	.024 (18 oz.)	36" x 96"	27.00 lbs.
.019 (14 oz.)	30" x 96"	17.50 lbs.	.027 (20 oz.)	30" x 60"	15.75 lbs.
	36" x 96"	21.00 lbs.		30" x 96"	25.00 lbs.
.021 (16 oz.)	10" x 96"	6.67 lbs.		36" x 96"	30.00 lbs.
	12" x 96"	8.00 lbs.	.032 (24 oz.)	24" x 96"	24.00 lbs.
	15" x 96"	10.00 lbs.		30" x 96"	30.00 lbs.
	18" x 96"	12.00 lbs.		36" x 96"	36.00 lbs.
	20" x 96"	13.33 lbs.		48" x 96"	48.00 lbs.
	24" x 96"	16.00 lbs.	.037 (28 oz.)	36" x 96"	42.00 lbs.
	30" x 96"	20.00 lbs.	.043 (32 oz.)	30" x 96"	40.00 lbs.
	36" x 96"	24.00 lbs.		36" x 96"	48.00 lbs.
	36" x 120"	30.00 lbs.		48" x 96"	64.00 lbs.
.024 (18 oz.)	24" x 96"	18.00 lbs.	.048 (36 oz.)	30" x 96"	45.00 lbs.
	30" x 96"	22.50 lbs.		36" x 96"	54.00 lbs.

Heavy Sizes

.054 (2½ lbs.)	48" x 120"	100.00 lbs.	.086 (4 lbs.)	60" x 144"	240.00 lbs.
	60" x 120"	125.00 lbs.	.097 (4½ lbs.)	12" x 120"	45.00 lbs.
.065 (3 lbs.)	30" x 96"	60.00 lbs.	.108 (5 lbs.)	60" x 144"	300.00 lbs.
	36" x 96"	72.00 lbs.	.129 (6 lbs.)	12" x 120"	60.00 lbs.
	48" x 96"	96.00 lbs.		60" x 144"	360.00 lbs.
	48" x 120"	120.00 lbs.	.250 (12 lbs.)	12" x 120"	120.00 lbs.
	60" x 144"	180.00 lbs.			

Lead Coated and other Copper Sheet Products listed on next page.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUMBRASS
BRONZE
COPPER

SHEET • PLATES • SHEETS • ROLLS

HOT ROLLED (SOFT) COPPER SHEETS (Including Coppersmith Sizes)

THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
Inches	Ounces			Inches	Ounces		
.013	(10 oz.)	30" x 60"	7.81 lbs.	.065	(3 lbs.)	48" x 72"	72 lbs.
.016	(12 oz.)	30" x 60"	9.38 lbs.			48" x 96"	96 lbs.
.019	(14 oz.)	30" x 96"	17.50 lbs.			48" x 120"	120 lbs.
		36" x 96"	21.00 lbs.			60" x 120"	150 lbs.
.021	(16 oz.)	20" x 96"	13.33 lbs.	.075	(3½ lbs.)	30" x 60"	44 lbs.
		24" x 96"	16.00 lbs.			60" x 120"	175 lbs.
		30" x 96"	20.00 lbs.	.086	(4 lbs.)	30" x 60"	50 lbs.
		36" x 96"	24.00 lbs.			48" x 72"	96 lbs.
.024	(18 oz.)	30" x 96"	22.50 lbs.			48" x 96"	128 lbs.
		36" x 96"	27.00 lbs.			48" x 120"	160 lbs.
.027	(20 oz.)	24" x 96"	20.00 lbs.			60" x 144"	240 lbs.
		30" x 96"	25.00 lbs.	.097	(4½ lbs.)	48" x 72"	108 lbs.
		36" x 96"	30.00 lbs.			48" x 144"	216 lbs.
		48" x 72"	30.00 lbs.	.108	(5 lbs.)	48" x 72"	120 lbs.
.032	(24 oz.)	30" x 60"	18.75 lbs.			60" x 120"	250 lbs.
		30" x 96"	30.00 lbs.			60" x 144"	300 lbs.
		36" x 96"	36.00 lbs.	.129	(6 lbs.)	48" x 72"	144 lbs.
		48" x 96"	48.00 lbs.			48" x 96"	192 lbs.
.043	(2 lbs.)	30" x 60"	25 lbs.			48" x 120"	240 lbs.
		30" x 96"	40 lbs.			48" x 144"	288 lbs.
		36" x 96"	48 lbs.			60" x 120"	300 lbs.
		48" x 72"	48 lbs.			60" x 144"	360 lbs.
		48" x 96"	64 lbs.			72" x 120"	360 lbs.
		48" x 120"	80 lbs.	.151	(7 lbs.)	48" x 72"	168 lbs.
.048	(2¼ lbs.)	36" x 96"	54 lbs.			48" x 72"	192 lbs.
		48" x 72"	54 lbs.	.172	(8 lbs.)	48" x 72"	400 lbs.
.054	(2½ lbs.)	30" x 60"	31 lbs.			60" x 120"	480 lbs.
		48" x 72"	60 lbs.			60" x 144"	480 lbs.
		48" x 120"	100 lbs.	.194	(9 lbs.)	48" x 72"	216 lbs.
.065	(3 lbs.)	30" x 60"	38 lbs.			48" x 72"	288 lbs.
		36" x 96"	72 lbs.	.259	(12 lbs.)		

ROUGH LEAD COATED COPPER SHEETS

Coated Both Sides

Standard 12- to 15-Pound Coating per 100 Square Feet

HOT ROLLED			COLD ROLLED		
THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sheet	THICKNESS Inches Ounces	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sheet
.021 (16 oz.)	30" x 96"	*20.00 lbs.	.021 (16 oz.)	24" x 96"	*16.00 lbs.
	36" x 96"	*24.00 lbs.		30" x 96"	*20.00 lbs.
				36" x 96"	*24.00 lbs.

*Weight of Sheet before lead coating is applied.

Heavy coating (24 to 30 lbs. per 100 sq. ft.) and extra heavy coating (40 to 50 lbs. per 100 sq. ft.) furnished promptly in standard or special size sheets and thicknesses, either soft or cold rolled.

Copper Rivets for use with the above Sheets are listed on Pages 170 and 171.

COPPER ROOFING MATERIALS

A Full Line of Roofing Materials and Accessories is Available

For Brass, Bronze and Copper Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

←
ALUMI-
NUM

 ←
BRASS
BRONZE
COPPER

INDEX—MONEL • NICKEL • INCONEL SHEET

MONEL	Page No.	NICKEL—Continued	Page No.
Cold Rolled Monel Sheets.....	38-39	Hot Rolled "A" Nickel and Low Carbon Nickel Plates.....	41
Monel Economy Sheets.....	39	Duranickel (Z Nickel) Strip.....	41
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"K" Monel Sheets and Strips.....	41		
NICKEL		INCONEL	
Cold Rolled "A" Nickel Sheets.....	41	Hot Rolled Inconel Sheets.....	42
Cold Rolled Low Carbon Nickel Sheets and Strips.....	41	Hot Rolled Inconel Plates.....	42
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The Nickel Alloy family of corrosion resistant metals may be considered a group of individualized alloys for the specific requirements of industry. With the possible exception of Monel, which is a "general purpose" metal, the other Nickel Alloys have been developed specifically to meet rigid requirements for machinability, product purity, superior strength, heat, fatigue or chemical resistance. A brief description of the specialized qualities precedes each product listing.

MONEL

COLD ROLLED MONEL SHEETS ANNEALED

Plain Finish

A cold rolled, soft, commercially flat sheet. It is used where appearance and smoothness of surface are important; can be used in moderate drawing and all bending operations, including lock seaming, and is readily soldered and welded.

THICKNESS		WIDTH & LENGTH		APPROX. WEIGHT		THICKNESS		WIDTH & LENGTH		APPROX. WEIGHT	
Inches	U.S.S. Gauge	Inches		Per Sq. Ft.	Per Sheet	Inches	U.S.S. Gauge	Inches		Per Sq. Ft.	Per Sheet
.018	(No. 26)	24" x 96"		.827 lbs.	13.23 lbs.	.025	(No. 24)	36" x 72"		1.15 lbs.	20.70 lbs.
		30" x 96"			16.54 lbs.			36" x 84"			24.15 lbs.
		30" x 120"			20.68 lbs.			36" x 96"			27.60 lbs.
		36" x 72"			14.89 lbs.			36" x 120"			34.50 lbs.
		36" x 96"			19.85 lbs.			40" x 120"			38.33 lbs.
.021	(No. 25)	24" x 96"		.965 lbs.	15.44 lbs.	.028	(No. 23)	42" x 120"		1.30 lbs.	40.25 lbs.
		30" x 96"			19.30 lbs.			44" x 120"			42.15 lbs.
		30" x 120"			24.13 lbs.			36" x 96"			31.20 lbs.
		36" x 72"			17.37 lbs.	.031	(No. 22)	24" x 96"			22.72 lbs.
		36" x 96"			23.16 lbs.			30" x 60"			21.30 lbs.
.025	(No. 24)	36" x 120"		1.15 lbs.	28.95 lbs.			30" x 96"			28.40 lbs.
		24" x 96"			18.40 lbs.			30" x 120"			35.50 lbs.
		30" x 72"			17.25 lbs.			36" x 72"			25.56 lbs.
		30" x 96"			23.00 lbs.			36" x 96"			34.08 lbs.
		30" x 120"			28.75 lbs.			36" x 120"			42.60 lbs.

(Continued on next page)

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.



SHEET • PLATES • SHEETS • ROLLS

COLD ROLLED MONEL SHEETS ANNEALED—Continued

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.031	(No. 22)	48" x 72"	1.42 lbs.	34.08 lbs.	.062	(No. 16)	36" x 120"	2.85 lbs.	85.50 lbs.
		48" x 96"		45.44 lbs.			48" x 120"		114.00 lbs.
		48" x 120"		56.80 lbs.			48" x 144"		136.80 lbs.
037	(No. 20)	24" x 96"	1.70 lbs.	27.20 lbs.	.078	(No. 14)	30" x 96"	3.60 lbs.	72.00 lbs.
		30" x 72"		25.50 lbs.			36" x 96"		86.40 lbs.
		30" x 84"		29.75 lbs.			48" x 120"		144.00 lbs.
		30" x 96"		34.00 lbs.			48" x 144"		172.80 lbs.
		36" x 72"		30.60 lbs.	.093	(No. 13)	30" x 96"	4.27 lbs.	85.40 lbs.
		36" x 84"		35.70 lbs.			36" x 96"		102.48 lbs.
		36" x 96"		40.80 lbs.			48" x 120"		170.80 lbs.
		36" x 120"		51.00 lbs.			48" x 144"		204.96 lbs.
		44" x 72"		37.40 lbs.	.109	(No. 12)	30" x 96"	5.04 lbs.	100.80 lbs.
		48" x 72"		40.80 lbs.			36" x 96"		120.96 lbs.
		48" x 84"		47.60 lbs.			48" x 120"		201.60 lbs.
		48" x 120"		68.00 lbs.			48" x 144"		241.92 lbs.
		48" x 144"		81.60 lbs.	.125	(No. 11)	24" x 96"	5.76 lbs.	92.16 lbs.
043	(No. 19)	30" x 96"	2.02 lbs.	40.40 lbs.			30" x 96"		115.20 lbs.
		36" x 96"		48.48 lbs.			36" x 96"		138.24 lbs.
		48" x 120"		80.80 lbs.			48" x 120"		230.40 lbs.
050	(No. 18)	30" x 96"	2.30 lbs.	46.00 lbs.			48" x 144"		276.48 lbs.
		30" x 120"		57.50 lbs.	.156	(No. 9)	40" x 84"	7.20 lbs.	168.00 lbs.
		36" x 72"		41.40 lbs.	.187	(No. 7)	36" x 72"	8.64 lbs.	155.52 lbs.
		36" x 96"		55.20 lbs.			36" x 96"		207.36 lbs.
		36" x 120"		69.00 lbs.			44" x 84"		221.24 lbs.
		48" x 120"		92.00 lbs.			48" x 96"		276.48 lbs.
		48" x 144"		110.40 lbs.	.250	(No. 3)	36" x 72"	11.52 lbs.	207.36 lbs.
.062	(No. 16)	24" x 96"	2.85 lbs.	45.60 lbs.			36" x 96"		276.48 lbs.
		30" x 96"		57.00 lbs.					
		36" x 96"		68.40 lbs.					

Intermediate gauges available from mill. Widths up to 60" and lengths up to 178" also available depending on gauge and width. STRIP .00075" to .250" thick, 1/32" to 14" wide, all tempers, promptly from mill.

Circles can be furnished up to width limit of sheets.

Sheets can also be furnished from mill in the following tempers: Deep Drawing Quality, Spinning Quality, 1/4 Hard and Harder, Soft Commercial.

MONEL ECONOMY SHEETS

A hot rolled, pickled and soft annealed Monel Sheet for applications where utility rather than appearance is the important factor.

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.018	(No. 26)	24" x 96"	.827 lbs.	13.23 lbs.	.025	(No. 24)	30" x 96"	1.15 lbs.	23.00 lbs.
		30" x 96"		16.54 lbs.			36" x 96"		27.60 lbs.
		36" x 96"		19.85 lbs.	.031	(No. 22)	36" x 96"	1.42 lbs.	34.08 lbs.
.021	(No. 25)	24" x 96"	.965 lbs.	15.44 lbs.	.037	(No. 20)	36" x 96"	1.70 lbs.	40.80 lbs.
		30" x 96"		19.30 lbs.	.050	(No. 18)	36" x 96"	2.30 lbs.	55.20 lbs.
		36" x 96"		23.16 lbs.					

Prompt mill shipments on thickness up to and including .250. Widths to 60" and lengths to 144", depending on thickness.

MONEL ROOFING SHEETS

A specially soft temper Monel Sheet for permanent roofing applications of all types including flashings, leaders, gutters, louvers, skylights, etc., can be readily lock seamed, formed and soldered. Excellent for institutional, industrial or domestic installations which demand low maintenance costs, long life and high resistance to corrosive atmospheres.

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.018	(No. 26)	24" x 96"	.827 lbs.	13.23 lbs.	.021	(No. 25)	30" x 96"	.965 lbs.	19.30 lbs.
		30" x 96"		16.54 lbs.			36" x 96"		23.16 lbs.
		36" x 96"		19.85 lbs.	.025	(No. 24)	30" x 96"	1.15 lbs.	23.00 lbs.
.021	(No. 25)	24" x 96"	.965 lbs.	15.44 lbs.			36" x 96"		27.60 lbs.

Prompt mill shipments on thickness up to and including .250. Widths to 60" and lengths to 144", depending on thickness.

For Monel Tie Wire, see Page 69 in Rod and Wire Section. Write for descriptive booklet, "ONE METAL ROOF."

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

MONEL
NICKEL
INCONEL

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

No. 35 MONEL SHEETS

Satin Finish One Side

No. 35 Monel Sheets—Satin finish one side, comparable with No. 180 grind, tempered to approximately quarter to half hard. Amount of cold rolling has been standardized to obtain a combination of hardness, flatness and workability. Suitable for bending, lock seaming and readily welded or soldered.

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT	
			Per Sq. Ft.	Per Sheet				Per Sq. Ft.	Per Sheet
.021	(No. 25)	24" x 96"	.965 lbs.	15.44 lbs.	.050	(No. 18)	48" x 96"	2.30 lbs.	73.60 lbs.
		30" x 96"		19.30 lbs.			48" x 120"		92.00 lbs.
		36" x 96"		23.16 lbs.	.062	(No. 16)	24" x 96"	2.85 lbs.	45.60 lbs.
		36" x 120"		28.95 lbs.			30" x 96"		57.00 lbs.
.025	(No. 24)	24" x 96"	1.15 lbs.	18.40 lbs.			30" x 120"		71.25 lbs.
		30" x 96"		23.00 lbs.			36" x 72"		51.30 lbs.
		30" x 120"		28.75 lbs.			36" x 84"		59.85 lbs.
		36" x 72"		20.70 lbs.			36" x 96"		68.40 lbs.
		36" x 84"		24.15 lbs.			36" x 108"		76.95 lbs.
		36" x 96"		27.60 lbs.			36" x 120"		85.50 lbs.
.031	(No. 22)	36" x 120"	1.42 lbs.	34.50 lbs.			38" x 120"		90.23 lbs.
		24" x 96"		22.72 lbs.			40" x 96"		75.98 lbs.
		30" x 96"		28.40 lbs.			42" x 96"		79.80 lbs.
		30" x 120"		35.50 lbs.			42" x 120"		99.75 lbs.
		36" x 96"		34.08 lbs.			48" x 72"		68.40 lbs.
		36" x 120"		42.60 lbs.			48" x 96"		91.20 lbs.
		40" x 96"		37.86 lbs.			48" x 108"		102.60 lbs.
		40" x 120"		47.33 lbs.			48" x 120"		114.00 lbs.
		42" x 96"		39.76 lbs.	.070	(No. 15)	36" x 96"	3.24 lbs.	77.76 lbs.
		48" x 96"		45.44 lbs.			48" x 120"		129.60 lbs.
.037	(No. 20)	48" x 120"	1.70 lbs.	56.80 lbs.	.078	(No. 14)	30" x 96"	3.60 lbs.	72.00 lbs.
		24" x 96"		27.20 lbs.			36" x 72"		64.80 lbs.
		30" x 96"		34.00 lbs.			36" x 96"		86.40 lbs.
		30" x 120"		42.50 lbs.			36" x 120"		108.00 lbs.
		36" x 96"		40.80 lbs.			40" x 96"		95.98 lbs.
		36" x 120"		51.00 lbs.			40" x 120"		119.99 lbs.
		44" x 96"		49.86 lbs.			42" x 96"		100.80 lbs.
		48" x 96"		54.40 lbs.			42" x 120"		129.60 lbs.
.043	(No. 19)	48" x 120"	2.02 lbs.	68.00 lbs.			44" x 84"		92.38 lbs.
		30" x 96"		40.40 lbs.			48" x 72"		86.40 lbs.
		36" x 96"		48.48 lbs.	.093	(No. 13)	48" x 96"	4.27 lbs.	115.20 lbs.
.050	(No. 18)	36" x 120"	2.30 lbs.	60.60 lbs.			48" x 120"		144.00 lbs.
		30" x 96"		46.00 lbs.			30" x 96"		85.40 lbs.
		30" x 120"		57.50 lbs.			30" x 120"		106.75 lbs.
		36" x 96"		55.20 lbs.			36" x 96"		102.48 lbs.
		36" x 120"		69.00 lbs.			36" x 120"		128.10 lbs.
		42" x 96"		64.40 lbs.			48" x 96"		136.64 lbs.
		44" x 120"		84.33 lbs.			48" x 120"		170.80 lbs.

Above sheets available from warehouse stock.

Intermediate sizes and gauges are available from the mill in gauge thicknesses between .021 and .093.

HOT ROLLED MONEL PLATES

Mill Delivery

Available in thicknesses from $\frac{3}{16}$ " to 2" (over 2" on application); widths to 130" and lengths to 650", depending on thickness.

Circles can be furnished rotary sheared up to $\frac{3}{4}$ " thickness. Over $\frac{3}{4}$ " they will be machined. All circles can be furnished with machined edges, minimum diameter 10".

Solid flanged and dished heads available as illustrated on page 47.

All plates can be furnished with sand blast finish or descaled with sodium hydride pickle.

Plates up to $1\frac{1}{4}$ " thick can be furnished with machined edges if required. All plates over $1\frac{1}{4}$ " thick, whether rectangular or square, must be machined to size.

For Monel and Nickel Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

ALUMI-
NUMBRASS
BRONZE
COPPERMONEL
NICKEL
INCONEL



SHEET • PLATES • SHEETS • ROLLS

"K" MONEL SHEETS AND STRIPS

Mill Delivery

(Heat Treatable)

Hardness: Soft Temper, Rockwell B 85 Max.

Heat Treated, Rockwell C 20-30

"K" Monel Cold Rolled Sheet is made in annealed temper only, suitable for fabricating and subsequent age hardening heat treatment to obtain the high physical properties of this non-magnetic alloy. Sheets have a dull matte surface and are commercially flat.

Available in thicknesses from .025 to .250.

Widths 6" to 36" and lengths up to 120", depending upon gauge.

In strip form, "K" Monel is made in tempers from soft to full hard in thicknesses from .001 to .250 and widths up to 12", depending upon gauge.

NICKEL

COLD ROLLED "A" NICKEL SHEETS

ANNEALED

Commercially pure Nickel for general purpose applications. Plain finish.

THICKNESS Inches U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.021 (No. 25)	36" x 96"	.971 lbs.	23.31 lbs.	.078 (No. 14)	36" x 96" 48" x 120"	3.60 lbs.	86.40 lbs. 144.00 lbs.
.025 (No. 24)	36" x 96"	1.15 lbs.	27.60 lbs.	.093 (No. 13)	36" x 96"	4.32 lbs.	103.68 lbs.
.031 (No. 22)	36" x 96"	1.44 lbs.	34.56 lbs.	.125 (No. 11)	36" x 96" 48" x 120"	5.76 lbs.	138.24 lbs. 230.40 lbs.
.037 (No. 20)	36" x 96" 48" x 120"	1.71 lbs.	41.04 lbs. 68.40 lbs.	.187 (No. 7)	36" x 96"	8.64 lbs.	207.36 lbs.
.050 (No. 18)	36" x 96" 48" x 120"	2.30 lbs.	55.20 lbs. 92.00 lbs.	.250 (No. 3)	36" x 96"	11.52 lbs.	276.48 lbs.
.062 (No. 16)	36" x 96" 48" x 120"	2.88 lbs.	69.12 lbs. 115.20 lbs.				

Above sheets available from stock.

Intermediate gauges and widths up to 60", lengths up to 178", available from the mill, depending on gauge. Sheets can also be furnished in Deep Drawing Quality, Spinning Quality, 1/4 Hard and Harder, and Soft Commercial tempers, and with Satin Finish surface.

COLD ROLLED LOW CARBON NICKEL SHEETS AND STRIPS

Mill Delivery

Used essentially for applications such as fused caustic and fused salts, carbon combustion boats, and for temperatures above 600° F. Softer than "A" Nickel and work hardens less rapidly so is preferred for difficult spinning. It is not recommended for deep drawing.

Low Carbon Nickel Sheets are available in thicknesses from .018 to .250; widths from 6" to 60" depending on gauge; lengths to 178" depending on gauge.

Low Carbon Nickel Strip is available in thicknesses from .00075 to .250 in widths to 14" depending on thickness.

HOT ROLLED "A" NICKEL AND LOW CARBON NICKEL PLATES

Mill Delivery

Available in thicknesses from 3/16" to 2"; widths to 130" and lengths to 650", depending on thickness.

Circles can be furnished rotary sheared up to 3/4" thickness. Over 3/4" they will be machined. All circles can be furnished with machined edges, minimum diameter 10".

Solid flanged and dished heads available as illustrated on page 47.

All plates can be furnished with sand blast finish or descaled with sodium hydride pickle. Plates can be furnished with machined edges if required.

All plates over 1 1/4" thick, whether rectangular or square, must be machined to size.

DURANICKEL

(Formerly known as Z Nickel)

(Heat Treatable for Hardness)

Mill Delivery

COLD ROLLED STRIP

In thicknesses from .00075 to .250 and in widths from 1/2" to 12", depending on thickness.

In coils or straight lengths.

Available in various tempers from soft to full hard.

Age hardening subsequent to cold rolling increases hardness.

Special sheet sizes may be obtained by sawing, shearing or slitting. See page 13.

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

ALUMI-
NUM**PERMANICKEL**(Formerly known as Z Nickel Type B)
(Heat Treatable for Hardness)

Mill Delivery

High physical properties similar to Duranickel. Indicated choice if improved electrical conductivity required or for resonance such as in tuning forks.

STRIP

In thicknesses from .00075 to .250 and widths from $\frac{1}{32}$ " to 12", depending on thickness.

In coils or straight lengths.

Temper as required, soft to full hard.

INCONEL**HOT ROLLED INCONEL SHEETS**

White pickled finish in soft temper, particularly suitable for heat resisting applications such as fixtures and muffles.

Annealed and Pickled

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.031 (No. 22)		36" x 96"	1.37 lbs.	32.88 lbs.	.125 (No. 11)		48" x 120"	5.56 lbs.	222.40 lbs.
.062 (No. 16)		36" x 96"	2.74 lbs.	65.76 lbs.	.187 (No. 7)		36" x 96"	8.34 lbs.	200.16 lbs.
.078 (No. 14)		48" x 120"	3.45 lbs.	138.00 lbs.			48" x 120"		333.60 lbs.
.093 (No. 13)		48" x 120"	4.11 lbs.	164.40 lbs.	.250 (No. 3)		36" x 96"	11.12 lbs.	266.88 lbs.
.109 (No. 12)		48" x 120"	4.82 lbs.	192.80 lbs.			48" x 120"		444.80 lbs.

Above sheets available from stock. STRIP .002" to .250" thick, $\frac{1}{32}$ " to 14" wide, all tempers, from mill.

Other sizes and gauges available for mill shipment.

COLD ROLLED SHEETS in intermediate gauges available from mill. Widths up to 60" and lengths up to 144" also available depending on gauge.

Sheets can also be furnished in Deep Drawing Quality, Spinning Quality, $\frac{1}{4}$ Hard and Harder, and Soft Commercial tempers.

HOT ROLLED INCONEL PLATES**Mill Delivery**

Available in thicknesses from $\frac{3}{16}$ " to 2"; widths to 130" and lengths to 680", depending on thickness.

Circles can be furnished rotary sheared up to $\frac{3}{4}$ " thickness. Over $\frac{3}{4}$ " they will be machined. All circles can be furnished with machined edges, minimum diameter 10".

Solid flanged and dished heads available as illustrated on page 47.

All plates can be furnished with sand blast finish or descaled with sodium hydride pickle. Plates can be furnished with machined edges as required.

All plates over $1\frac{1}{4}$ " thick, whether rectangular or square, must be machined to size.

COLD ROLLED "INCONEL X" SHEETS—ANNEALED

Age hardenable alloy evolved from Inconel and appreciably stronger than regular Inconel up to 1800° F. After suitable heat treatment, is an unusually strong alloy both at ordinary temperatures and at red heat. Highly resistant to oxidation, outstandingly low creep rate under stress at 1200° F. to 1500° F. Useful for springs, structures subject to stress and corrosion such as gas turbine parts, jet engine assemblies, etc.

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	Per Sheet
.031 (No. 22)		36" x 96"	1.33 lbs.	31.92 lbs.	.078 (No. 14)		36" x 96"	3.37 lbs.	80.88 lbs.
.043 (No. 19)		36" x 96"	1.86 lbs.	44.64 lbs.	.093 (No. 13)		36" x 96"	4.01 lbs.	96.24 lbs.
.050 (No. 18)		36" x 96"	2.16 lbs.	51.84 lbs.	.125 (No. 11)		36" x 96"	5.40 lbs.	129.60 lbs.
.062 (No. 16)		36" x 96"	2.68 lbs.	64.32 lbs.					

Above sheets available from stock.

Other sheet sizes are available from the mill in thicknesses from .025 to .250 inclusive. Consult office for specific sizes.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.

BRASS
BRONZE
COPPERMONEL
NICKEL
INCONEL



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No. 2B Finish.....45

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The outstanding property of Stainless Steels is their resistance to corrosion in numerous but not all corrosive environments. Of the stock alloys listed, Types 302 and 304 are the general purpose Stainless Steels and are differentiated by amount of carbon content. Type 304 with a lower carbon content is slightly more corrosion resistant and more readily weldable than 302. Type 347 is equal in corrosion resistance to Types 302 and 304 with the added features of heat resistance within the 800° to 1600° temperature range, and ease of welding. High on the scale of corrosion resistance and particularly useful in the chemical fields is Type 316. Other special purpose alloys in the 300 series and 400 series, although not listed in this section, are readily available from the mill.

Types No. 302 and No. 304 STAINLESS STEEL SHEETS

(18% Chromium, 8% Nickel)

No. 4 POLISHED FINISH ONE SIDE

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.019	(No. 26)	24" x 96"	.788 lbs.	12.6 lbs.	.031	(No. 22)	30" x 96"	1.313 lbs.	26.3 lbs.
		30" x 96"		15.8 lbs.			30" x 120"		32.8 lbs.
		30" x 120"		19.7 lbs.			36" x 96"		31.5 lbs.
		36" x 96"		18.9 lbs.			36" x 120"		39.4 lbs.
		36" x 120"		23.6 lbs.			48" x 96"		42.0 lbs.
.025	(No. 24)	24" x 96"	1.050 lbs.	16.8 lbs.			48" x 120"		52.5 lbs.
		24" x 120"		21.0 lbs.	.037	(No. 20)	24" x 96"	1.575 lbs.	25.2 lbs.
		30" x 96"		21.0 lbs.			30" x 96"		31.5 lbs.
		30" x 120"		26.3 lbs.			30" x 120"		39.4 lbs.
		36" x 96"		25.2 lbs.			36" x 96"		37.8 lbs.
		36" x 120"		31.5 lbs.			36" x 120"		47.3 lbs.
		48" x 96"		33.6 lbs.			48" x 96"		50.4 lbs.
		48" x 120"		42.0 lbs.			48" x 120"		63.0 lbs.
.031	(No. 22)	24" x 96"	1.313 lbs.	21.0 lbs.	.050	(No. 18)	30" x 96"	2.100 lbs.	42.0 lbs.
		24" x 120"		26.3 lbs.			30" x 120"		52.5 lbs.

(Continued on next page)

For a comparison of the properties and qualities of different Stainless Steel alloys, consult chart on pages 10 and 11.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZINGSPECIAL
PROD-
UCTSSTAIN-
LESSCLAD
METALSMISC.
SHEET



Types No. 302 and No. 304 STAINLESS STEEL SHEETS—Continued

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT	
			Per Sq. Ft.	Per Sheet				Per Sq. Ft.	Per Sheet
.050	(No. 18)	36" x 96"	2.100 lbs.	50.4 lbs.	.078	(No. 14)	48" x 96"	3.281 lbs.	104.9 lbs.
		36" x 120"		63.0 lbs.			48" x 120"		131.2 lbs.
		42" x 120"		73.5 lbs.	.094	(No. 13)	36" x 96"	3.938 lbs.	94.5 lbs.
		48" x 96"		67.2 lbs.			36" x 120"		118.1 lbs.
		48" x 120"		84.0 lbs.			48" x 120"		157.5 lbs.
.062	(No. 16)	30" x 96"	2.625 lbs.	52.5 lbs.	.109	(No. 12)	30" x 96"	4.594 lbs.	91.9 lbs.
		30" x 120"		65.6 lbs.			30" x 120"		114.9 lbs.
		36" x 96"		63.0 lbs.			36" x 96"		110.3 lbs.
		36" x 120"		78.8 lbs.			36" x 120"		137.8 lbs.
		42" x 120"		91.8 lbs.			38" x 96"		146.9 lbs.
		48" x 96"		84.0 lbs.			48" x 120"		183.8 lbs.
.078	(No. 14)	30" x 96"	3.281 lbs.	65.6 lbs.	.125	(No. 11)	36" x 96"	5.250 lbs.	126.0 lbs.
		30" x 120"		82.0 lbs.			36" x 120"		157.5 lbs.
		36" x 96"		78.7 lbs.			48" x 96"		168.0 lbs.
		36" x 120"		98.4 lbs.			48" x 120"		210.0 lbs.
		42" x 96"		91.8 lbs.	.141	(No. 10)	36" x 120"	5.906 lbs.	177.2 lbs.
		42" x 120"		114.8 lbs.			48" x 120"		236.2 lbs.

Types No. 302 and No. 304 STAINLESS STEEL SHEETS

(18% Chromium, 8% Nickel)

No. 2B FINISH—ANNEALED, PICKLED AND COLD ROLLED

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT		THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT	
			Per Sq. Ft.	Per Sheet				Per Sq. Ft.	Per Sheet
.015	(No. 28)	36" x 96"	.656 lbs.	15.7 lbs.	.050	(No. 18)	42" x 120"	2.100 lbs.	73.5 lbs.
		36" x 120"		19.7 lbs.			48" x 96"		67.2 lbs.
.019	(No. 26)	24" x 96"	.788 lbs.	12.6 lbs.			48" x 120"		84.0 lbs.
		30" x 96"		15.8 lbs.	.062	(No. 16)	30" x 96"	2.625 lbs.	52.5 lbs.
		30" x 120"		19.7 lbs.			30" x 120"		65.6 lbs.
		36" x 96"		18.9 lbs.			36" x 96"		63.0 lbs.
		36" x 120"		23.6 lbs.			36" x 120"		78.8 lbs.
.025	(No. 24)	24" x 96"	1.050 lbs.	16.8 lbs.			42" x 120"		91.8 lbs.
		24" x 120"		21.0 lbs.			48" x 96"		84.0 lbs.
		30" x 96"		21.0 lbs.			48" x 120"		105.0 lbs.
		30" x 120"		26.3 lbs.	.078	(No. 14)	30" x 96"	3.281 lbs.	65.6 lbs.
		36" x 96"		25.2 lbs.			30" x 120"		82.0 lbs.
		36" x 120"		31.5 lbs.			36" x 96"		78.7 lbs.
.031	(No. 22)	48" x 96"	1.313 lbs.	33.6 lbs.			36" x 120"		98.4 lbs.
		48" x 120"		42.0 lbs.			42" x 120"		114.8 lbs.
							48" x 96"		104.9 lbs.
							48" x 120"		131.2 lbs.
.037	(No. 20)	24" x 96"	1.575 lbs.	21.0 lbs.	.094	(No. 13)	36" x 96"	3.938 lbs.	94.5 lbs.
		24" x 120"		26.3 lbs.			36" x 120"		118.1 lbs.
		30" x 96"		26.3 lbs.			48" x 120"		157.5 lbs.
		30" x 120"		32.8 lbs.	.109	(No. 12)	30" x 120"	4.594 lbs.	114.9 lbs.
		36" x 96"		31.5 lbs.			36" x 96"		110.3 lbs.
		36" x 120"		39.4 lbs.			36" x 120"		137.8 lbs.
.050	(No. 18)	48" x 96"	2.100 lbs.	42.0 lbs.			42" x 120"	5.250 lbs.	160.8 lbs.
		48" x 120"		52.5 lbs.	.125	(No. 11)	48" x 96"		146.9 lbs.
							48" x 120"		183.8 lbs.
							36" x 96"		126.0 lbs.
							36" x 120"		157.5 lbs.
.050	(No. 18)	30" x 96"	2.100 lbs.	42.0 lbs.			48" x 96"	5.906 lbs.	168.0 lbs.
		30" x 120"		52.5 lbs.	.141	(No. 10)	48" x 120"		210.0 lbs.
		36" x 96"		50.4 lbs.			48" x 144"		252.0 lbs.
		36" x 120"		63.0 lbs.			48" x 120"		236.2 lbs.

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.ALUMI-
NUMBRASS
BRONZE
COPPERMONEL
NICKEL
INCONELSTAIN-
LESSCLAD
METALSMISC.
SHEET



SHEET • PLATES • SHEETS • ROLLS

Types No. 302 and No. 304 STAINLESS STEEL PLATES

(18% Chromium, 8% Nickel)

HOT ROLLED, ANNEALED AND PICKLED FINISH

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.187 (3/16")	36" x 96" 48" x 120"	7.752 lbs.	186.1 lbs. 310.1 lbs.	.250 (1/4")	36" x 96" 48" x 120"	10.336 lbs.	248.1 lbs. 413.4 lbs.

Type No. 347 STAINLESS STEEL SHEETS

(18% Chromium, 10% Nickel and Columbium)

No. 2B FINISH—ANNEALED, PICKLED AND COLD ROLLED

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.019 (No. 26)		36" x 120"	.788 lbs.	23.6 lbs.	.078 (No. 14)		36" x 120" 48" x 120"	3.281 lbs.	98.4 lbs. 131.2 lbs.
.025 (No. 24)		36" x 120"	1.050 lbs.	31.5 lbs.	.109 (No. 12)		36" x 120" 48" x 120"	4.594 lbs.	137.8 lbs. 183.8 lbs.
.031 (No. 22)		36" x 120"	1.313 lbs.	39.4 lbs.	.125 (No. 11)		36" x 120" 48" x 120"	5.250 lbs.	157.5 lbs. 210.0 lbs.
.037 (No. 20)		36" x 120" 48" x 120"	1.575 lbs.	47.3 lbs. 63.0 lbs.	.141 (No. 10)		36" x 120" 48" x 120"	5.906 lbs.	177.2 lbs. 236.2 lbs.
.050 (No. 18)		36" x 120" 48" x 120"	2.100 lbs.	63.0 lbs. 84.0 lbs.					
.062 (No. 16)		36" x 120" 48" x 120"	2.625 lbs.	78.8 lbs. 105.0 lbs.					

Type No. 316 STAINLESS STEEL SHEETS

(18% Chromium, 12% Nickel and Molybdenum)

No. 2B FINISH—ANNEALED, PICKLED AND COLD ROLLED

THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	U.S.S. Gauge	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.019 (No. 26)		36" x 96"	.788 lbs.	18.9 lbs.	.062 (No. 16)		36" x 120" 48" x 120"	2.625 lbs.	78.8 lbs. 105.0 lbs.
.025 (No. 24)		36" x 96" 36" x 120"	1.050 lbs.	25.2 lbs. 31.5 lbs.	.078 (No. 14)		36" x 120" 48" x 120"	3.281 lbs.	98.4 lbs. 131.2 lbs.
.031 (No. 22)		36" x 120" 48" x 120"	1.313 lbs.	39.4 lbs. 52.5 lbs.	.109 (No. 12)		36" x 120" 48" x 120"	4.594 lbs.	137.8 lbs. 183.8 lbs.
.037 (No. 20)		36" x 120" 48" x 120"	1.575 lbs.	47.3 lbs. 63.0 lbs.	.125 (No. 11)		36" x 120" 48" x 120"	5.250 lbs.	157.5 lbs. 210.0 lbs.
.050 (No. 18)		36" x 120" 48" x 120"	2.100 lbs.	63.0 lbs. 84.0 lbs.	.141 (No. 10)		36" x 120" 48" x 120"	5.906 lbs.	177.2 lbs. 236.2 lbs.

Type No. 316 STAINLESS STEEL PLATES

(18% Chromium, 12% Nickel and Molybdenum)

HOT ROLLED, ANNEALED AND PICKLED FINISH

THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet	THICKNESS Inches	WIDTH & LENGTH Inches	APPROX. WEIGHT Per Sq. Ft.	APPROX. WEIGHT Per Sheet
.187 (3/16")	48" x 120"	7.752 lbs.	310.1 lbs.	.375 (3/8")	48" x 120"	15.503 lbs.	620.1 lbs.
.250 (1/4")	48" x 120"	10.336 lbs.	413.4 lbs.	.500 (1/2")	48" x 120"	20.671 lbs.	826.8 lbs.

For Stainless Steel Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

A complete assortment of Stainless Steel Screws, Nuts, Bolts, etc., is listed in the **FASTENERS SECTION**.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

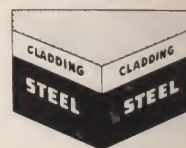
SPECIAL
PROD-
UCTS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

LUKENS CLAD STEELS



Lukens clad steel plate is a composite plate made up of a carbon or low-alloy steel backing plate to one or both surfaces of which is uniformly and inseparably bonded, by hot rolling, a cladding of some corrosion-resistant metal. Supplied clad with Nickel, Monel, Inconel, or Stainless Steel. Provides economical material in place of the solid metals of similar analyses for lower cost fabrication of large vessels, tanks, agitators, towers, heat exchangers, and other operating and storage equipment. Plates are supplied with sodium hydride finish.

PERMANENCE OF BOND

In Lukens Clad Steels, the bond is permanent. No separation of the steel from the cladding occurs under normal conditions of temperature change, pressure, vacuum or mechanical shock. Fabricating operations such as shearing, bending, flanging, forming, riveting or welding are commercially performed.

PERCENTAGE OF CLADDING TO BACKING

Lukens Clad Steels are normally furnished with cladding thickness equal to 10% to 20% of the total plate thickness, to provide the same protection as Nickel, Stainless, Inconel and Monel at substantial reduction from the cost of solid corrosion-resistant metal.

SIZE AND GAUGE RANGE

Produced on Lukens 206" mill, world's largest plate mill, providing unusually wide or long plates where required for economical construction.

PLATES:

Thicknesses of $\frac{3}{16}$ " (minimum) to over 3" thick.

Widths to 178", depending upon gauge and material.

Lengths to 480".

Smaller size plates are attained by shearing, flame cutting or machining.

CIRCLES:

Nickel clad and Stainless clad—all diameters up to 178".

Inconel and Monel—all diameters up to 162".

Sketch plates sheared on request.

Wide range of heads and forms, see Typical Shapes, on opposite page.

For light gauge (under $\frac{3}{16}$ " thick) clad steels, see Permaclad, Page 48.

* * *

A manual describing proper cutting, forming, and welding procedures and other valuable information is incorporated in the manual entitled "Fabrication of Lukens Clad Steels." Write for it.

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←
ALUMI-
NUM

←
BRASS
BRONZE
COPPER

←
MONEL
NICKEL
INCONEL

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

The Products Listed on This Page Are

WHITEHEAD MILL ITEMS



SHEET • PLATES • SHEETS • ROLLS

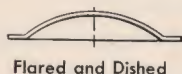
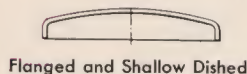
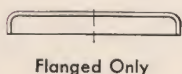
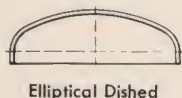
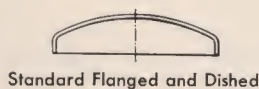
LUKENS CLAD STEELS

THEORETICAL PLATE WEIGHTS PER SQUARE FOOT

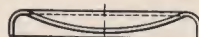
THICKNESS Inches	CHROMIUM-NICKEL STAINLESS-CLAD		STRAIGHT CHROMIUM STAINLESS-CLAD		NICKEL-CLAD INCONEL-CLAD MONEL-CLAD	
	10%	20%	10%	20%	10%	20%
3/16"	7.66	7.67	7.64	7.64	7.75	7.84
1/4"	10.21	10.23	10.19	10.18	10.33	10.46
5/16"	12.77	12.78	12.74	12.73	12.91	13.07
3/8"	15.32	15.34	15.29	15.27	15.49	15.69
7/16"	17.87	17.90	17.83	17.82	18.08	18.30
1/2"	20.42	20.45	20.38	20.37	20.66	20.91
9/16"	22.98	23.01	22.93	22.91	23.24	23.53
5/8"	25.53	25.57	25.48	25.46	25.82	26.14
11/16"	28.08	28.12	28.02	28.00	28.40	28.76
3/4"	30.64	30.68	30.57	30.55	30.99	31.37
7/8"	35.74	35.79	35.67	35.64	36.15	36.60
1"	40.85	40.91	40.76	40.73	41.31	41.83
1 1/2"	61.27	61.36	61.14	61.10	61.97	62.74
2"	81.70	81.81	81.52	81.46	82.62	83.69

LUKENS CLAD STEEL HEADS

The following are some of the most important styles available:



A.S.M.E. Code—A.P.I.—A.S.M.E. Code



Dimensions to Specify in Ordering:

OD—Outside diameter, in.

ID—Inside diameter, in.

R—Radius of dish, in.

SF—Straight flange, in.

OA—Overall height, in. } specify more important dimension, not both.

ICR—Inside corner radius, in.

S—Degree of slope

T—Thickness, in. (minimum or nominal).

Heads and certain other formed shapes can be obtained with the cladding either on the inside or the outside or both.

The Products Listed on This Page Are

WHITEHEAD MILL ITEMS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FAST
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

PERMACLAD STAINLESS-CLAD STEEL SHEETS

Economical bi-metal cold rolled sheet with steel backing and 10% or more Stainless on one side. Stainless surface supplied standard plain or with No. 4 Finish, if desired. Provides advantages of Stainless where wanted for appearance and other applications and at lower cost than solid alloy sheet. Supplied in Stainless Types Nos. 302, 304, 316, 347, and others on application.

Range of Size and Thickness

U.S.S. Gauge 17 and heavier through $\frac{3}{16}$ "—48" maximum width x 144" maximum length.

18 and 19 Gauge—48" maximum width x 120" maximum length or 36" maximum width x 144" maximum length.

20 Gauge—Sizes on application. (Minimum in which produced.)

For general use 10% cladding is suggested for 13 Gauge and heavier, 20% on 14 Gauge and lighter.

THEORETICAL WEIGHTS PER SQUARE FOOT

U.S.S. GAUGE No.	APPROX. THICKNESS Inches	APPROX. WEIGHT Pounds per Sq. Ft. for PERMACLAD	U.S.S. GAUGE No.	APPROX. THICKNESS Inches	APPROX. WEIGHT Pounds per Sq. Ft. for PERMACLAD
7	.179	7.5	14	.075	3.125
8	.164	6.875	15	.067	2.812
9	.149	6.25	16	.060	2.5
10	.134	5.625	17	.054	2.25
11	.120	5.	18	.048	2.
12	.105	4.375	19	.042	1.75
13	.090	3.75	20	.036	1.5

ROSSLYN METAL

Product of American Cladmetals Co.

ROSSLYN METAL is a clad metal usually made up in sheets, whose outer surfaces are of stainless steel or a nickel alloy inseparably bonded to an interlayer of high conductivity copper. The purpose of this combination is to utilize best qualities of each metal and to offset a disadvantage of one by an advantageous quality of the other.

Copper has excellent heat diffusing or chilling characteristics, but is softer, more subject to corrosion and more difficult to keep bright and clean. Stainless steel and the nickel alloys are highly resistant to corrosion, very durable, and easy to keep bright and clean.

ROSSLYN METAL sheets are made in the following standard A.I.S.I. types of chromium-nickel grades of stainless steel: Types 301, 302, 304, 305, 310, 321, 347, Monel, Nickel and Inconel can be readily fabricated with normal shop practice methods.

SIZES OF STANDARD PRODUCTION SHEETS

Length: Minimum	3"	Thickness: Minimum	0.025"
Maximum	180"	Maximum	0.200"
Width: Minimum	3"	Weight per piece:	
Maximum	54"	Maximum	500 lbs.

OTHER SPECIAL SIZES MAY BE QUOTED ON APPLICATION

The thickness of the component layers of the ROSSLYN METAL is usually the same, but a lighter or heavier layer of copper may be produced to suit a particular specification.

Nickeloid Metals

An inexpensive rust-resistant metal sheet with nickel, chromium, brass, or copper electroplated to all common base metals. Plain, crimped, corrugated or striped, in a wide range of sizes.

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.



SHEET • PLATES • SHEETS • ROLLS

SU-VENEER STRIP

Steel strip clad with Monel or Nickel on either one or both sides. Savings up to 35% have been effected by using Su-Veneer instead of solid metal. Thicknesses from .010 to .125 and widths up to 15". Free samples are available for examination.

ZINC PRODUCTS

SOFT ZINC SHEETS

THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
Inches	Zinc Gauge			Inches	Zinc Gauge		
.010	(No. 5)	36" x 84"	7.8 lbs.	.018	(No. 9)	48" x 84"	18.8 lbs.
.016	(No. 8)	36" x 84"	12.6 lbs.	.018	(No. 9)	48" x 96"	21.3 lbs.
.018	(No. 9)	24" x 84"	9.4 lbs.	.020	(No. 10)	36" x 84"	15.8 lbs.
.018	(No. 9)	36" x 84"	14.0 lbs.	.024	(No. 11)	36" x 84"	18.9 lbs.
.018	(No. 9)	36" x 96"	16.0 lbs.	.028	(No. 12)	36" x 84"	22.0 lbs.

CHROME PLATED ZINC SHEETS

THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet	THICKNESS		WIDTH & LENGTH Inches	APPROX. WT. Per Sheet
Inches	Zinc Gauge			Inches	Zinc Gauge		
.008	(No. 4)	36" x 42"	3.15 lbs.	.018	(No. 9)	36" x 96"	16.0 lbs.
.010	(No. 5)	36" x 96"	8.88 lbs.	.024	(No. 11)	36" x 96"	21.6 lbs.
.012	(No. 6)	36" x 96"	10.80 lbs.				

Zinc Ribbon in coils, Zinc Boiler Plates, Hull Plates and Discs, promptly available.

COMMERCIAL LEAD SHEETS

Standard Sheets

96" Wide x 20 Feet Long

2½ lb. to 16 lb. Per Square Foot

Lighter Weight Lead Sheet Available

Our mill has facilities for rolling Lead Sheets up to 10 feet wide and 40 feet long.

• • •

OTHER LEAD PRODUCTS

BURNING BAR • CHEMICAL AND ANTIMONIAL LEAD SHEET AND PIPE

LEAD TUBE • COILS • FITTINGS • CAULKING LEAD • LEAD FLASHINGS

LEAD WOOL • LEAD ROD, BAR AND WIRE

All Lead Products are made from Virgin Lead.

Where St. Joe Lead is specified we guarantee the product to be such and will so bill it.

PLASTIC SHEETS

SARAN

SHEET SIZES	THICKNESSES
20" x 20"	¼" to ½"
24" x 24"	¼" to ¼"

POLYSTYRENE

SHEET SIZES	THICKNESSES
8" x 8"	.020" to ¼"
20" x 20"	⅛" to 1"
24" x 24"	⅛" to ¼"

Consult your nearest Whitehead office.

The Products Listed on This Page Are

WHITEHEAD MILL ITEMS

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAIN-
LESS

CLAD
METALS

MISC.
SHEET

TECHNICAL BULLETINS and ENGINEERING DATA

•

Every metal—every fabrication process—and almost every industrial field provides the subject matter for the multitude of technical and semi-technical literature written for your use. Even a partial listing of this information would fill many pages and possibly still not lead to the answer to your specific question. Tell us your problems and we shall select and send you the proper subject matter. Our engineering and technical sales division is at your service.

For Metals—and the Answers to Metal Problems

CALL WHITEHEAD FIRST

Rod *and* Wire Section



rounds
hexagons
flats
squares

... for rod and wire section index, see next page



Call **WHITEHEAD**

First!

See inside covers
for addresses and
phone numbers.

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

DATA

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MONEL, NICKEL, INCONEL	65-72
Round, Hexagon, Square, Rectangular, Shafting	
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**FOR ANGLES, HALF ROUNDS AND HALF OVALS
SEE SHAPES SECTION**

**FOR BUSHINGS AND BEARING BRONZE RODS
SEE SPECIAL PRODUCTS SECTION**

Detailed index precedes each alloy section



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

INDEX—ALUMINUM ROD AND WIRE

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An important consideration in the selection of a metal for many applications is the ease with which the metal can be fashioned into the finished article by machining. Alcoa Aluminum offers many advantages, for it does possess good machining characteristics. A booklet is available which presents information for use by tool designers and machinists so that these advantages may be fully realized. Write for "Machining Aluminum and Its Alloys."

25-H18 ROUND ALUMINUM RODS

(Former Temper Designation 2-SH)
In 12-Foot Lengths

SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length
1/8" dia.	.014 lbs.	.168 lbs.	3/16" dia.	.032 lbs.	.384 lbs.	3/8" dia.	.090 lbs.	1.080 lbs.
1/4" dia.	.022 lbs.	.264 lbs.	1/4" dia.	.058 lbs.	.696 lbs.			

2S-F ROUND ALUMINUM RODS

(Former Temper Designation 2-S "As Fabricated")
In 12-Foot Lengths

SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	WEIGHT Per Length
3/8" dia.	.129 lbs.	1.548 lbs.	1" dia.	.921 lbs.	11.052 lbs.	2 1/4" dia.	4.662 lbs.	*
7/16" dia.	.176 lbs.	2.112 lbs.	1 1/4" dia.	1.439 lbs.	17.268 lbs.	2 1/2" dia.	5.755 lbs.	*
1/2" dia.	.230 lbs.	2.760 lbs.	1 3/8" dia.	1.741 lbs.	20.892 lbs.	3" dia.	8.257 lbs.	*
9/16" dia.	.291 lbs.	3.492 lbs.	1 1/2" dia.	2.072 lbs.	24.864 lbs.	3 1/2" dia.	11.300 lbs.	*
5/8" dia.	.360 lbs.	4.320 lbs.	1 3/4" dia.	2.825 lbs.	33.900 lbs.	4" dia.	14.760 lbs.	*
3/4" dia.	.518 lbs.	6.216 lbs.	1 7/8" dia.	3.327 lbs.	38.850 lbs.			
7/8" dia.	.705 lbs.	8.460 lbs.	2" dia.	3.683 lbs.	44.200 lbs.			

*Carried in 6-, 10-, and 12-foot random lengths.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN-
LESS

MISC.

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

DATA



11S-T3 ROUND ALUMINUM SCREW MACHINE RODS

The most easily machinable of the aluminum alloys. Should be used in those applications where ease of machining is the prime consideration.

In 12-Foot Lengths

SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length
1/8" dia.	.014 lbs.	.168 lbs.	9/16" dia.	.301 lbs.	3.612 lbs.	1 1/16" dia.	1.967 lbs.	23.600 lbs.
3/32" dia.	.022 lbs.	.264 lbs.	5/8" dia.	.372 lbs.	4.465 lbs.	1 1/2" dia.	2.142 lbs.	25.700 lbs.
1/16" dia.	.033 lbs.	.396 lbs.	1 1/16" dia.	.449 lbs.	5.388 lbs.	1 5/8" dia.	2.317 lbs.	27.804 lbs.
7/32" dia.	.045 lbs.	.540 lbs.	3/4" dia.	.535 lbs.	6.420 lbs.	1 3/4" dia.	2.513 lbs.	30.150 lbs.
1/4" dia.	.059 lbs.	.708 lbs.	13/16" dia.	.627 lbs.	7.524 lbs.	1 7/8" dia.	2.914 lbs.	35.000 lbs.
9/32" dia.	.075 lbs.	.900 lbs.	7/8" dia.	.727 lbs.	8.724 lbs.	1 7/8" dia.	3.337 lbs.	40.040 lbs.
5/16" dia.	.093 lbs.	1.116 lbs.	1 1/8" dia.	.835 lbs.	10.020 lbs.	2" dia.	3.801 lbs.	45.610 lbs.
1 1/32" dia.	.112 lbs.	1.344 lbs.	1" dia.	.951 lbs.	11.412 lbs.	2 1/8" dia.	4.295 lbs.	51.540 lbs.
3/8" dia.	.134 lbs.	1.608 lbs.	1 1/16" dia.	1.071 lbs.	12.852 lbs.	2 1/4" dia.	4.810 lbs.	57.720 lbs.
13/32" dia.	.157 lbs.	1.884 lbs.	1 1/8" dia.	1.205 lbs.	14.460 lbs.	2 1/2" dia.	5.943 lbs.	71.316 lbs.
7/16" dia.	.182 lbs.	2.184 lbs.	1 3/16" dia.	1.339 lbs.	16.068 lbs.	2 3/4" dia.	7.189 lbs.	86.268 lbs.
1 1/32" dia.	.209 lbs.	2.508 lbs.	1 1/4" dia.	1.483 lbs.	17.796 lbs.	3" dia.	8.549 lbs.	102.588 lbs.
1/2" dia.	.238 lbs.	2.856 lbs.	1 3/8" dia.	1.637 lbs.	19.640 lbs.			
1 1/16" dia.	.268 lbs.	3.216 lbs.	1 1/2" dia.	1.792 lbs.	21.500 lbs.			

17S-T4 ROUND ALUMINUM RODS

(Former Temper Designation 17ST)

In 12-Foot Lengths

SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	SIZE Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length
3/32" dia.	.008 lbs.	.096 lbs.	1 5/16" dia.	.835 lbs.	10.020 lbs.	2 1/16" dia.	5.078 lbs.	*
1/8" dia.	.014 lbs.	.168 lbs.	1" dia.	.951 lbs.	11.412 lbs.	2 3/8" dia.	5.356 lbs.	*
9/32" dia.	.022 lbs.	.264 lbs.	1 1/16" dia.	1.071 lbs.	12.852 lbs.	2 1/2" dia.	5.647 lbs.	*
1/16" dia.	.033 lbs.	.396 lbs.	1 1/8" dia.	1.205 lbs.	14.460 lbs.	2 1/2" dia.	5.943 lbs.	*
7/32" dia.	.045 lbs.	.540 lbs.	1 3/16" dia.	1.339 lbs.	16.068 lbs.	2 5/8" dia.	6.240 lbs.	*
1/4" dia.	.059 lbs.	.708 lbs.	1 1/4" dia.	1.483 lbs.	17.796 lbs.	2 5/8" dia.	6.551 lbs.	*
9/32" dia.	.075 lbs.	.900 lbs.	1 3/8" dia.	1.637 lbs.	19.644 lbs.	2 3/4" dia.	7.189 lbs.	*
5/16" dia.	.093 lbs.	1.116 lbs.	1 3/8" dia.	1.792 lbs.	21.504 lbs.	2 7/8" dia.	7.858 lbs.	*
3/8" dia.	.134 lbs.	1.608 lbs.	1 7/8" dia.	1.967 lbs.	23.604 lbs.	3" dia.	8.549 lbs.	*
1 1/32" dia.	.157 lbs.	1.884 lbs.	1 1/2" dia.	2.142 lbs.	25.704 lbs.	3 1/8" dia.	9.281 lbs.	*
7/16" dia.	.182 lbs.	2.184 lbs.	1 5/8" dia.	2.317 lbs.	27.804 lbs.	3 1/4" dia.	10.042 lbs.	*
1 1/32" dia.	.209 lbs.	2.508 lbs.	1 5/8" dia.	2.513 lbs.	30.156 lbs.	3 3/8" dia.	10.825 lbs.	*
1/2" dia.	.238 lbs.	2.856 lbs.	1 11/16" dia.	2.708 lbs.	32.496 lbs.	3 1/2" dia.	11.639 lbs.	†
1 1/16" dia.	.268 lbs.	3.216 lbs.	1 3/4" dia.	2.914 lbs.	34.968 lbs.	3 3/4" dia.	13.369 lbs.	†
5/8" dia.	.301 lbs.	3.612 lbs.	1 13/16" dia.	3.120 lbs.	37.440 lbs.	4" dia.	15.203 lbs.	†
1 1/32" dia.	.335 lbs.	4.020 lbs.	1 7/8" dia.	3.337 lbs.	40.044 lbs.	4 1/4" dia.	17.170 lbs.	†
3/4" dia.	.372 lbs.	4.464 lbs.	1 15/16" dia.	3.564 lbs.	42.768 lbs.	4 1/2" dia.	19.240 lbs.	†
1 1/16" dia.	.449 lbs.	5.388 lbs.	2" dia.	3.801 lbs.	45.612 lbs.	4 3/4" dia.	21.443 lbs.	†
7/8" dia.	.535 lbs.	6.420 lbs.	2 1/16" dia.	4.047 lbs.	*	5" dia.	23.759 lbs.	†
1 3/32" dia.	.580 lbs.	6.960 lbs.	2 1/8" dia.	4.295 lbs.	*	5 1/2" dia.	28.780 lbs.	†
1 3/16" dia.	.627 lbs.	7.524 lbs.	2 3/16" dia.	4.583 lbs.	*	6" dia.	34.206 lbs.	†
7/8" dia.	.727 lbs.	8.724 lbs.	2 1/4" dia.	4.810 lbs.	*	7" dia.	46.567 lbs.	†
						8" dia.	60.822 lbs.	†

*In random 6- to 12-foot lengths.

†In random 3- to 12-foot lengths.

Alcoa Aluminum Rods may be cut to size to suit your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

24S-T4 ROUND ALUMINUM RODS

(Former Designation 24ST)
In 12-Foot Lengths

SIZE Inches	APPROX. WEIGHT		SIZE Inches	APPROX. WEIGHT		SIZE Inches	APPROX. WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length		Per Foot	Per Length
1/8" dia.	.014 lbs.	.168 lbs.	1 1/16" dia.	1.061 lbs.	12.732 lbs.	2 3/8" dia.	6.487 lbs.	*
3/16" dia.	.033 lbs.	.396 lbs.	1 1/8" dia.	1.193 lbs.	14.316 lbs.	2 3/4" dia.	7.120 lbs.	*
1/4" dia.	.059 lbs.	.708 lbs.	1 1/4" dia.	1.469 lbs.	17.628 lbs.	2 7/8" dia.	7.783 lbs.	*
5/16" dia.	.092 lbs.	1.104 lbs.	1 1/2" dia.	1.622 lbs.	19.464 lbs.	3" dia.	8.466 lbs.	*
3/8" dia.	.133 lbs.	1.596 lbs.	1 3/8" dia.	1.775 lbs.	21.300 lbs.	3 1/8" dia.	9.191 lbs.	*
7/16" dia.	.181 lbs.	2.172 lbs.	1 1/2" dia.	2.122 lbs.	25.464 lbs.	3 1/4" dia.	9.941 lbs.	*
1/2" dia.	.236 lbs.	2.832 lbs.	1 3/4" dia.	2.489 lbs.	29.868 lbs.	3 1/2" dia.	11.526 lbs.	†
5/8" dia.	.298 lbs.	3.576 lbs.	1 3/4" dia.	2.887 lbs.	34.644 lbs.	3 3/4" dia.	13.235 lbs.	†
3/4" dia.	.367 lbs.	4.404 lbs.	1 7/8" dia.	3.305 lbs.	39.660 lbs.	4" dia.	15.058 lbs.	†
1 1/16" dia.	.445 lbs.	5.340 lbs.	2" dia.	3.764 lbs.	45.168 lbs.	4 1/4" dia.	16.999 lbs.	†
3/4" dia.	.529 lbs.	6.348 lbs.	2 1/8" dia.	4.253 lbs.	*	4 1/2" dia.	19.058 lbs.	†
1 1/16" dia.	.621 lbs.	7.452 lbs.	2 1/4" dia.	4.763 lbs.	*	4 3/4" dia.	21.234 lbs.	†
7/8" dia.	.721 lbs.	8.640 lbs.	2 3/4" dia.	5.304 lbs.	*	5" dia.	23.528 lbs.	†
1" dia.	.941 lbs.	11.292 lbs.	2 1/2" dia.	5.885 lbs.	*	5 1/2" dia.	28.558 lbs.	†

*In random 6- to 12-foot lengths.

†In random 3- to 12-foot lengths.

61S-T6 ROUND ALUMINUM RODS

(Former Designation 61ST)
In Standard 12-Foot Lengths

SIZE Inches	APPROXIMATE WEIGHT		SIZE Inches	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
1/4" dia.	.059 lbs.	.708 lbs.	1 3/8" dia.	1.792 lbs.	21.504 lbs.
5/16" dia.	.093 lbs.	1.116 lbs.	1 1/2" dia.	2.142 lbs.	25.704 lbs.
3/8" dia.	.134 lbs.	1.608 lbs.	1 3/4" dia.	2.914 lbs.	34.968 lbs.
1/2" dia.	.238 lbs.	2.856 lbs.	2" dia.	3.801 lbs.	45.612 lbs.
5/8" dia.	.372 lbs.	4.464 lbs.	2 1/4" dia.	4.810 lbs.	*
3/4" dia.	.535 lbs.	6.420 lbs.	2 1/2" dia.	5.943 lbs.	*
7/8" dia.	.727 lbs.	8.724 lbs.	2 3/4" dia.	7.189 lbs.	*
1" dia.	.951 lbs.	11.412 lbs.	3" dia.	8.549 lbs.	*
1 1/4" dia.	1.483 lbs.	17.796 lbs.			

*In random 6- to 12-foot lengths.

17S-T4 HEXAGON ALUMINUM RODS

(Former Designation 17ST)
In 12-Foot Lengths

SIZE Inches (Across Flats)	APPROXIMATE WEIGHT		SIZE Inches (Across Flats)	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
3/16" hex.	.037 lbs.	.444 lbs.	1" hex.	1.051 lbs.	12.612 lbs.
1/4" hex.	.065 lbs.	.780 lbs.	1 1/16" hex.	1.185 lbs.	14.220 lbs.
5/16" hex.	.102 lbs.	1.224 lbs.	1 1/8" hex.	1.329 lbs.	15.948 lbs.
3/8" hex.	.147 lbs.	1.764 lbs.	1 3/16" hex.	1.473 lbs.	17.676 lbs.
7/16" hex.	.201 lbs.	2.412 lbs.	1 1/4" hex.	1.638 lbs.	19.656 lbs.
1/2" hex.	.262 lbs.	3.144 lbs.	1 5/16" hex.	1.803 lbs.	21.636 lbs.
9/16" hex.	.332 lbs.	3.984 lbs.	1 3/8" hex.	1.978 lbs.	23.736 lbs.
5/8" hex.	.409 lbs.	4.908 lbs.	1 7/16" hex.	2.163 lbs.	25.956 lbs.
1 1/16" hex.	.495 lbs.	5.940 lbs.	1 1/2" hex.	2.359 lbs.	28.308 lbs.
3/4" hex.	.589 lbs.	7.068 lbs.	1 5/8" hex.	2.771 lbs.	33.252 lbs.
1 1/16" hex.	.692 lbs.	8.304 lbs.	1 3/4" hex.	3.214 lbs.	38.568 lbs.
7/8" hex.	.802 lbs.	9.624 lbs.	1 7/8" hex.	3.687 lbs.	44.244 lbs.
1 5/16" hex.	.920 lbs.	11.040 lbs.	2" hex.	4.192 lbs.	50.304 lbs.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTEN-
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC.



11S-T3 HEXAGON STD. SCREW MACHINE RODS

In 12-Foot Lengths

SIZE Inches (Across Flats)	APPROXIMATE WEIGHT		SIZE Inches (Across Flats)	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
3/8" hex.	.147 lbs.	1.764 lbs.	1 1/16" hex.	.692 lbs.	8.304 lbs.
7/16" hex.	.201 lbs.	2.412 lbs.	7/8" hex.	.802 lbs.	9.624 lbs.
1/2" hex.	.262 lbs.	3.144 lbs.	1 5/16" hex.	.920 lbs.	11.040 lbs.
9/16" hex.	.332 lbs.	3.984 lbs.	1" hex.	1.051 lbs.	12.612 lbs.
5/8" hex.	.409 lbs.	4.908 lbs.	1 1/8" hex.	1.329 lbs.	15.948 lbs.
1 1/16" hex.	.495 lbs.	5.940 lbs.	1 1/4" hex.	1.638 lbs.	19.656 lbs.
3/4" hex.	.589 lbs.	7.068 lbs.			

For larger sizes of Screw Machine Rods, see 17S-T4 Hexagon Rods, page 53.

24S-T4 HEXAGON ALUMINUM RODS

(Former Designation 24ST)

In 12-Foot Lengths

SIZE Inches (Across Flats)	APPROXIMATE WEIGHT		SIZE Inches (Across Flats)	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
1/4" hex.	.064 lbs.	.768 lbs.	1" hex.	1.040 lbs.	12.480 lbs.
3/16" hex.	.101 lbs.	1.212 lbs.	1 1/8" hex.	1.313 lbs.	15.756 lbs.
3/8" hex.	.146 lbs.	1.752 lbs.	1 1/4" hex.	1.619 lbs.	19.428 lbs.
7/16" hex.	.199 lbs.	2.388 lbs.	1 3/8" hex.	1.958 lbs.	23.496 lbs.
1/2" hex.	.259 lbs.	3.108 lbs.	1 1/2" hex.	2.336 lbs.	28.032 lbs.
9/16" hex.	.328 lbs.	3.936 lbs.	1 5/8" hex.	2.741 lbs.	32.892 lbs.
5/8" hex.	.405 lbs.	4.860 lbs.	1 3/4" hex.	3.177 lbs.	38.124 lbs.
1 1/16" hex.	.491 lbs.	5.892 lbs.	1 7/8" hex.	3.648 lbs.	43.776 lbs.
3/4" hex.	.583 lbs.	6.996 lbs.	2" hex.	4.151 lbs.	49.812 lbs.
7/8" hex.	.795 lbs.	9.540 lbs.			

63S-T5 EXTRUDED SQUARE ALUMINUM RODS

In 16-Foot Lengths

SIZE Inches (Across Flats)	APPROXIMATE WEIGHT		SIZE Inches (Across Flats)	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
1/4" square	.073 lbs.	1.17 lbs.	3/8" square	.468 lbs.	7.50 lbs.
3/16" square	.116 lbs.	1.86 lbs.	3/4" square	.674 lbs.	10.78 lbs.
3/8" square	.169 lbs.	2.70 lbs.	1" square	1.200 lbs.	19.20 lbs.
1/2" square	.300 lbs.	4.80 lbs.			

24S-T4 SQUARE ALUMINUM RODS

(Former Designation 24ST)

In 12-Foot Lengths

SIZE Inches (Across Flats)	APPROXIMATE WEIGHT		SIZE Inches (Across Flats)	APPROXIMATE WEIGHT	
	Per Foot	Per Length		Per Foot	Per Length
3/8" square	.165 lbs.	1.980 lbs.	1" square	1.193 lbs.	14.316 lbs.
1/2" square	.300 lbs.	3.600 lbs.	1 1/8" square	1.514 lbs.	18.168 lbs.
9/16" square	.378 lbs.	4.536 lbs.	1 1/4" square	1.867 lbs.	22.404 lbs.
5/8" square	.468 lbs.	5.616 lbs.	1 1/2" square	2.693 lbs.	32.316 lbs.
3/4" square	.672 lbs.	8.064 lbs.	1 3/4" square	3.661 lbs.	43.932 lbs.
7/8" square	.917 lbs.	11.004 lbs.	2" square	4.784 lbs.	57.408 lbs.

Alcoa Aluminum Rods may be cut to size to suit your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

61S-T6 RECTANGULAR ALUMINUM RODS

(Former Designation 61ST)

In 12-Foot Lengths

THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
1/8" x 1"	.150 lbs.	1.800 lbs.	1/4" x 3"	.899 lbs.	10.788 lbs.
3/16" x 3/4"	.169 lbs.	2.028 lbs.	3/8" x 1"	.449 lbs.	5.388 lbs.
x 1"	.225 lbs.	2.700 lbs.	x 1 1/4"	.562 lbs.	6.744 lbs.
x 1 1/2"	.337 lbs.	4.044 lbs.	x 2"	.899 lbs.	10.788 lbs.
1/4" x 1"	.300 lbs.	3.600 lbs.	1/2" x 2"	1.198 lbs.	14.376 lbs.
x 1 1/2"	.449 lbs.	5.388 lbs.	3/4" x 3"	2.697 lbs.	32.364 lbs.
x 2"	.599 lbs.	7.188 lbs.	1" x 4"	4.792 lbs.	†

†In random 6- to 12-foot lengths.

63S-T5 EXTRUDED RECTANGULAR ALUMINUM RODS

In 16-Foot Lengths

THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
1/8" x 1/2"	.076 lbs.	1.220 lbs.	1/4" x 2 1/2"	.750 lbs.	12.000 lbs.
x 3/8"	.094 lbs.	1.500 lbs.	x 3"	.900 lbs.	14.400 lbs.
x 3/4"	.113 lbs.	1.810 lbs.	3/8" x 1/2"	.224 lbs.	3.584 lbs.
x 1"	.150 lbs.	2.400 lbs.	x 3/8"	.281 lbs.	4.496 lbs.
x 1 1/4"	.187 lbs.	2.990 lbs.	x 3/4"	.338 lbs.	5.408 lbs.
x 1 1/2"	.226 lbs.	3.620 lbs.	x 1"	.450 lbs.	7.200 lbs.
x 1 3/4"	.263 lbs.	4.210 lbs.	x 1 1/4"	.563 lbs.	9.008 lbs.
x 2"	.300 lbs.	4.800 lbs.	x 1 1/2"	.674 lbs.	10.784 lbs.
3/16" x 1/2"	.113 lbs.	1.810 lbs.	x 2"	.900 lbs.	14.400 lbs.
x 3/4"	.169 lbs.	2.700 lbs.	x 3"	1.350 lbs.	21.600 lbs.
x 1"	.226 lbs.	3.620 lbs.	1/2" x 3/4"	.450 lbs.	7.200 lbs.
x 1 1/4"	.281 lbs.	4.500 lbs.	x 1"	.600 lbs.	9.600 lbs.
x 1 1/2"	.337 lbs.	5.390 lbs.	x 1 1/4"	.750 lbs.	12.000 lbs.
x 2"	.450 lbs.	7.200 lbs.	x 1 1/2"	.900 lbs.	14.400 lbs.
x 2 1/2"	.563 lbs.	9.010 lbs.	x 2"	1.200 lbs.	19.200 lbs.
1/4" x 1/2"	.150 lbs.	2.400 lbs.	x 2 1/2"	1.500 lbs.	24.000 lbs.
x 3/8"	.187 lbs.	2.992 lbs.	x 3"	1.800 lbs.	28.800 lbs.
x 3/4"	.224 lbs.	3.584 lbs.	3/4" x 1 1/2"	1.350 lbs.	21.600 lbs.
x 1"	.300 lbs.	4.800 lbs.	x 2"	1.800 lbs.	28.800 lbs.
x 1 1/4"	.374 lbs.	5.984 lbs.	1" x 1 1/2"	1.800 lbs.	28.800 lbs.
x 1 1/2"	.450 lbs.	7.200 lbs.	x 2"	2.400 lbs.	38.400 lbs.
x 1 3/4"	.524 lbs.	8.384 lbs.			
x 2"	.600 lbs.	9.600 lbs.			

24S-T4 RECTANGULAR ALUMINUM RODS

(Former Designation 24ST)

In 12-Foot Lengths

THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
1/8" x 1/2"	.075 lbs.	.900 lbs.	1/4" x 1/2"	.150 lbs.	1.800 lbs.
x 3/8"	.094 lbs.	1.128 lbs.	x 3/8"	.187 lbs.	2.244 lbs.
x 3/4"	.112 lbs.	1.344 lbs.	x 3/4"	.225 lbs.	2.700 lbs.
x 1"	.150 lbs.	1.800 lbs.	x 7/8"	.262 lbs.	3.144 lbs.
x 1 1/4"	.187 lbs.	2.244 lbs.	x 1"	.300 lbs.	3.600 lbs.
x 1 1/2"	.225 lbs.	2.700 lbs.	x 1 1/4"	.375 lbs.	4.500 lbs.
x 2"	.300 lbs.	3.600 lbs.	x 1 1/2"	.449 lbs.	5.388 lbs.
3/16" x 1/2"	.112 lbs.	1.344 lbs.	x 2"	.599 lbs.	7.188 lbs.
x 3/4"	.169 lbs.	2.028 lbs.	x 2 1/2"	.749 lbs.	8.988 lbs.
x 1"	.225 lbs.	2.700 lbs.	x 3"	.899 lbs.	10.788 lbs.
x 1 1/4"	.281 lbs.	3.372 lbs.	3/16" x 1/2"	.187 lbs.	2.244 lbs.
x 1 1/2"	.337 lbs.	4.044 lbs.	x 3/8"	.234 lbs.	2.808 lbs.
x 2"	.449 lbs.	5.388 lbs.	x 3/4"	.281 lbs.	3.372 lbs.

(Continued on next page)

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

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WELDING
AND
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LESS

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MISC.

ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES



24S-T4 RECTANGULAR ALUMINUM RODS—Continued

THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	THICKNESS & WIDTH Inches	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
$\frac{3}{16}$ " x 1"	.375 lbs.	4.500 lbs.	$\frac{3}{4}$ " x 1"	.899 lbs.	10.788 lbs.
x 1½"	.562 lbs.	6.744 lbs.	x 1½"	1.348 lbs.	16.176 lbs.
x 2"	.749 lbs.	8.988 lbs.	x 2"	1.797 lbs.	21.564 lbs.
$\frac{3}{8}$ " x ½"	.225 lbs.	2.700 lbs.	x 2½"	2.246 lbs.	26.952 lbs.
x $\frac{5}{8}$ "	.281 lbs.	3.372 lbs.	x 3"	2.696 lbs.	33.352 lbs.
x $\frac{3}{4}$ "	.337 lbs.	4.044 lbs.	x 3½"	3.145 lbs.	*
x 1"	.449 lbs.	5.388 lbs.	x 6"	5.392 lbs.	*
x 1¼"	.562 lbs.	6.744 lbs.	1" x 1¼"	1.498 lbs.	17.976 lbs.
x 1½"	.674 lbs.	8.088 lbs.	x 1½"	1.797 lbs.	21.564 lbs.
x 1¾"	.786 lbs.	9.432 lbs.	x 1¾"	2.097 lbs.	25.164 lbs.
x 2"	.899 lbs.	10.788 lbs.	x 2"	2.397 lbs.	28.764 lbs.
x 2½"	1.123 lbs.	13.476 lbs.	x 2½"	2.996 lbs.	35.952 lbs.
x 3"	1.348 lbs.	16.176 lbs.	x 3"	3.595 lbs.	43.140 lbs.
x 4"	1.797 lbs.	*	x 3½"	4.194 lbs.	*
x 6"	2.697 lbs.	*	x 4"	4.793 lbs.	*
x 10"	4.493 lbs.	*	x 6"	7.190 lbs.	*
$\frac{1}{2}$ " x $\frac{5}{8}$ "	.375 lbs.	4.500 lbs.	1¼" x 1½"	2.246 lbs.	26.952 lbs.
x $\frac{3}{4}$ "	.449 lbs.	5.388 lbs.	x 2"	2.995 lbs.	35.940 lbs.
x $\frac{7}{8}$ "	.524 lbs.	6.288 lbs.	x 2½"	3.745 lbs.	44.941 lbs.
x 1"	.599 lbs.	7.188 lbs.	x 3"	4.494 lbs.	*
x 1¼"	.749 lbs.	8.988 lbs.	1½" x 2"	3.595 lbs.	43.140 lbs.
x 1½"	.899 lbs.	10.788 lbs.	x 2½"	4.492 lbs.	*
x 1¾"	1.048 lbs.	12.576 lbs.	x 3"	5.392 lbs.	*
$\frac{1}{2}$ " x 2"	1.198 lbs.	14.376 lbs.	2" x 2¼"	5.741 lbs.	*
x 2½"	1.498 lbs.	17.976 lbs.	x 2½"	5.991 lbs.	*
x 3"	1.797 lbs.	21.564 lbs.	x 3"	7.190 lbs.	*
x 4"	2.396 lbs.	*	x 6"	14.380 lbs.	*
x 6"	3.594 lbs.	*	2¼" x 4"	11.482 lbs.	**
x 8"	4.793 lbs.	*	2½" x 4"	11.982 lbs.	**
x 10"	5.991 lbs.	*	x 4½"	13.481 lbs.	**
$\frac{5}{8}$ " x $\frac{3}{4}$ "	.562 lbs.	6.744 lbs.	x 5"	14.979 lbs.	**
x $\frac{7}{8}$ "	.655 lbs.	7.860 lbs.	x 6"	17.974 lbs.	**
x 1"	.749 lbs.	8.988 lbs.	2¾" x 4"	13.181 lbs.	**
x 1¼"	.936 lbs.	11.232 lbs.	3" x 4"	14.380 lbs.	**
x 1½"	1.123 lbs.	13.476 lbs.			
x 2"	1.498 lbs.	17.976 lbs.			

*Indicates Rolled Rod in Random 6- to 12-Foot Lengths.

**Indicates Rolled Rod in Random 3- to 12-Foot Lengths.

2S-O COILED ALUMINUM WIRE

Also Used as Welding Wire

SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet
.051 dia.	2.30 lbs.	.081 dia.	6.00 lbs.	1.02 dia.	9.50 lbs.	$\frac{3}{16}$ " dia.	32.30 lbs.
.064 dia.	3.80 lbs.	.091 dia.	7.60 lbs.	$\frac{1}{8}$ " dia.	14.30 lbs.	$\frac{1}{4}$ " dia.	57.70 lbs.

2S COILED ALUMINUM RIVET WIRE

SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet
.061 dia.	3.45 lbs.	.123 dia.	13.50 lbs.	.184 dia.	30.90 lbs.	.310 dia.	87.80 lbs.
.092 dia.	7.60 lbs.	.154 dia.	21.30 lbs.	.247 dia.	54.10 lbs.	.372 dia.	123.00 lbs.
.118 dia.	12.10 lbs.	.162 dia.	24.20 lbs.				

17S COILED ALUMINUM RIVET WIRE

SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet	SIZE Inches	APPROX. WT. Per 1000 Feet
.092 dia.	7.83 lbs.	.154 dia.	21.94 lbs.	.247 dia.	55.72 lbs.	.372 dia.	130.09 lbs.
.123 dia.	13.90 lbs.	.184 dia.	31.83 lbs.	.310 dia.	91.78 lbs.		

Alcoa Aluminum Rods may be cut to size to suit your needs.

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ANACONDA RODS

Anaconda copper and copper alloy rods are produced in many forms, sizes and alloys for a variety of applications. The more popular uses of Anaconda Rods are automatic screw machine stock, architectural structures and propeller shafting. Brass has been more or less accepted as one of the most serviceable and easily machined metals. However, no one metal meets all requirements. By the addition of one or more closely controlled element, some of the brasses and other copper alloys are given greater strength or greater resistance to wear, and a higher degree of corrosion resistance. A comparison of the qualities and characteristics of copper and copper alloys may be found on pages 6 and 7.

ROUND BRASS RODS

Free Turning Quality

In Random 10- to 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/16" dia. x 6' exact	.011 lbs.	1/8" dia.	.045 lbs.	7/32" dia.	.139 lbs.	3/8" dia.	.407 lbs.
3/32" dia. x abt. 6'	.025 lbs.	3/16" dia.	.059 lbs.	1/4" dia.	.159 lbs.	13/32" dia.	.478 lbs.
1/4" dia. x 6' exact	.030 lbs.	1/2" dia.	.071 lbs.	5/16" dia.	.181 lbs.	7/16" dia.	.554 lbs.
		5/8" dia.	.085 lbs.	3/8" dia.	.229 lbs.	1 1/2" dia.	.636 lbs.
		3/4" dia.	.102 lbs.	7/16" dia.	.283 lbs.	1 1/2" dia.	.723 lbs.
		1 1/4" dia.	.119 lbs.	1 1/2" dia.	.342 lbs.	1 3/4" dia.	.817 lbs.

(Continued on next page)

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAIN-
LESS

ALUMINUM

MISC.



ROUND BRASS RODS—Continued

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
9/16" dia.	.916 lbs.	1 1/4" dia.	4.521 lbs.	2 1/8" dia.	13.07 lbs.	3 3/4" dia. x abt. 4' to 6'	40.70 lbs.
5/8" dia.	1.130 lbs.	1 5/8" dia.	4.984 lbs.	2 1/4" dia.	14.65 lbs.	4" dia. x abt. 4' to 6'	46.30 lbs.
2 1/32" dia.	1.246 lbs.	1 3/8" dia.	5.470 lbs.	2 3/8" dia.	16.32 lbs.	4 1/2" dia. x abt. 4'	58.60 lbs.
1 1/4" dia.	1.368 lbs.	1 7/8" dia.	5.979 lbs.	2 1/2" dia.	18.08 lbs.		
3/4" dia.	1.628 lbs.	1 1/2" dia.	6.510 lbs.	2 3/4" dia.	19.94 lbs.		
1 3/8" dia.	1.910 lbs.	1 5/8" dia.	7.064 lbs.		21.88 lbs.		
7/8" dia.	2.215 lbs.	1 3/4" dia.	7.640 lbs.	3" dia. x abt. 6' to 9'	26.04 lbs.	5" dia. x abt. 10'	72.30 lbs.
1 1/8" dia.	2.543 lbs.	1 11/16" dia.	8.239 lbs.	3 1/4" dia. x abt. 6' to 8'	30.60 lbs.	6" dia. x abt. 8'	104.20 lbs.
1" dia.	2.893 lbs.	1 3/4" dia.	8.861 lbs.				
1 1/16" dia.	3.266 lbs.	1 7/8" dia.	10.170 lbs.	3 1/2" dia. x abt. 5' to 7'	35.40 lbs.		
1 1/8" dia.	3.662 lbs.	1 5/8" dia.	10.860 lbs.				
1 3/16" dia.	4.080 lbs.	2" dia.	11.570 lbs.				

For other sizes, see Drill Gauge Rods, listed below.

Half Round and Half Oval, see SHAPES SECTION.

ROUND BRASS RODS

Drill Gauge Sizes

Free Cutting

NUM- BER	GAUGE Inches	LENGTH Inches	APPROX. WT. Per Foot	NUM- BER	GAUGE Inches	LENGTH Inches	APPROX. WT. Per Foot	NUM- BER	GAUGE Inches	LENGTH Inches	APPROX. WT. Per Foot
1	.228	36"	.150 lbs.	21	.159	36"	.073 lbs.	41	.096	36"	.027 lbs.
2	.221	120"	.141 lbs.	22	.157	120"	.071 lbs.	42	.093	36"	.025 lbs.
3	.213	36"	.131 lbs.	23	.154	36"	.069 lbs.	43	.089	36"	.023 lbs.
4	.209	36"	.126 lbs.	24	.152	36"	.067 lbs.	44	.086	36"	.021 lbs.
5	.205	36"	.122 lbs.	25	.149	72"	.065 lbs.	45	.082	36"	.019 lbs.
6	.204	120"	.120 lbs.	26	.147	36"	.062 lbs.	46	.081	36"	.019 lbs.
7	.201	36"	.117 lbs.	27	.144	36"	.060 lbs.	47	.078	36"	.018 lbs.
8	.199	36"	.115 lbs.	28	.140	120"	.057 lbs.	48	.076	36"	.017 lbs.
9	.196	36"	.111 lbs.	29	.136	72"	.053 lbs.	49	.073	36"	.015 lbs.
10	.193	36"	.108 lbs.	30	.128	72"	.048 lbs.	50	.070	36"	.014 lbs.
11	.191	36"	.105 lbs.	31	.120	72"	.042 lbs.	51	.067	36"	.013 lbs.
12	.189	120"	.103 lbs.	32	.116	36"	.039 lbs.	52	.063	72"	.012 lbs.
13	.185	36"	.099 lbs.	33	.113	36"	.037 lbs.	53	.059	36"	.010 lbs.
14	.182	72"	.096 lbs.	34	.111	36"	.036 lbs.	54	.055	36"	.009 lbs.
15	.180	72"	.094 lbs.	35	.110	72"	.035 lbs.	55	.052	36"	.008 lbs.
16	.177	36"	.091 lbs.	36	.106	36"	.033 lbs.	56	.046	36"	.006 lbs.
17	.173	36"	.087 lbs.	37	.104	36"	.031 lbs.	57	.043	36"	.005 lbs.
18	.169	120"	.083 lbs.	38	.101	36"	.030 lbs.	58	.042	36"	.005 lbs.
19	.166	72"	.080 lbs.	39	.099	36"	.029 lbs.	59	.041	36"	.005 lbs.
20	.161	36"	.075 lbs.	40	.098	36"	.028 lbs.	60	.040	36"	.005 lbs.

For convenience the complete list of drill gauge sizes of rod are shown although only the popular sizes are regular stock items. The non-stock sizes are available promptly from the mill.

ROUND *TOBIN BRONZE RODS

Specially Turned and Straightened for Shafting

SIZE Inches	STOCK Lengths	APPROX. WT. Per Foot	SIZE Inches	STOCK Lengths	APPROX. WT. Per Foot	SIZE Inches	STOCK Lengths	APPROX. WT. Per Foot
3/4" dia.	12 ft.	1.612 lbs.	1 1/2" dia.	12-18 ft.	6.447 lbs.	3" dia.	12-18 ft.	25.790 lbs.
7/8" dia.	12 ft.	2.194 lbs.	1 3/4" dia.	12-18 ft.	8.774 lbs.	3 1/4" dia.	18 ft.	30.260 lbs.
1" dia.	12-18 ft.	2.865 lbs.	2" dia.	12-18 ft.	11.460 lbs.	3 1/2" dia.	12 ft.	35.100 lbs.
1 1/8" dia.	12-18 ft.	3.626 lbs.	2 1/4" dia.	12-18 ft.	14.500 lbs.	4" dia.	12 ft.	45.840 lbs.
1 1/4" dia.	12-18 ft.	4.477 lbs.	2 1/2" dia.	12-18 ft.	17.910 lbs.	4 1/2" dia.	8-12 ft.	58.020 lbs.
1 3/8" dia.	12-18 ft.	5.417 lbs.	2 3/4" dia.	18 ft.	21.670 lbs.	5" dia.	10 ft.	71.630 lbs.

*Trade-mark Reg. U. S. Patent Office.

Anaconda Brass, Bronze and Copper Rods may be cut to size to suit your needs.

ROUND TOBIN BRONZE RODS

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.045 lbs.	1 1/16" dia.	1.354 lbs.	1 5/16" dia.	4.936 lbs.	2 1/2" dia.	17.910 lbs.
3/16" dia.	.101 lbs.	3/4" dia.	1.612 lbs.	1 3/8" dia.	5.417 lbs.	2 3/4" dia.	21.670 lbs.
1/4" dia.	.179 lbs.	13/16" dia.	1.891 lbs.	1 7/8" dia.	5.921 lbs.	3" dia.	25.790 lbs.
5/32" dia.	.227 lbs.	7/8" dia.	2.194 lbs.	1 1/2" dia.	6.447 lbs.	3 1/4" dia.	30.260 lbs.
3/16" dia.	.280 lbs.	1 5/16" dia.	2.518 lbs.	1 3/4" dia.	7.566 lbs.	3 1/2" dia.	35.100 lbs.
3/8" dia.	.403 lbs.	1" dia.	2.865 lbs.	1 3/4" dia.	8.774 lbs.	3 3/4" dia.	40.290 lbs.
7/16" dia.	.548 lbs.	1 1/16" dia.	3.234 lbs.	1 7/8" dia.	10.070 lbs.	4" dia.	45.840 lbs.
1/2" dia.	.716 lbs.	1 1/8" dia.	3.626 lbs.	2" dia.	11.460 lbs.		
5/16" dia.	.907 lbs.	1 3/16" dia.	4.040 lbs.	2 1/8" dia.	12.940 lbs.		
5/8" dia.	1.119 lbs.	1 1/4" dia.	4.477 lbs.	2 1/4" dia.	14.500 lbs.		

Tobin Bronze Welding Rods, see WELDING AND BRAZING SECTION.

Write for Booklet B-16, "Tobin Bronze—General Properties and Applications."

ROUND NAVAL BRONZE RODS

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.045 lbs.	1 1/16" dia.	1.354 lbs.	1 1/4" dia.	4.477 lbs.	2" dia.	11.460 lbs.
1/4" dia.	.179 lbs.	3/4" dia.	1.612 lbs.	1 3/8" dia.	4.936 lbs.	2 1/4" dia.	14.500 lbs.
3/16" dia.	.280 lbs.	13/16" dia.	1.891 lbs.	1 3/8" dia.	5.417 lbs.	2 1/2" dia.	17.910 lbs.
3/8" dia.	.403 lbs.	7/8" dia.	2.194 lbs.	1 7/8" dia.	5.921 lbs.	2 3/4" dia.	21.670 lbs.
7/16" dia.	.548 lbs.	1 5/16" dia.	2.518 lbs.	1 1/2" dia.	6.447 lbs.	3" dia.	25.790 lbs.
1/2" dia.	.716 lbs.	1" dia.	2.865 lbs.	1 3/8" dia.	7.566 lbs.		
5/16" dia.	.907 lbs.	1 1/16" dia.	3.234 lbs.	1 3/4" dia.	8.774 lbs.		
5/8" dia.	1.119 lbs.	1 1/8" dia.	3.626 lbs.	1 7/8" dia.	10.070 lbs.		

ROUND ARCHITECTURAL EXTRUDED BRONZE RODS

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
3/8" dia.	.407 lbs.	5/8" dia.	1.130 lbs.	1" dia.	2.893 lbs.
1/2" dia.	.723 lbs.	3/4" dia.	1.628 lbs.	1 1/4" dia.	4.521 lbs.

For Architectural Angles, see SHAPES SECTION.

For Architectural Sheet, see SHEET SECTION.

ROUND COMMERCIAL BRONZE RODS

Leaded Free Turning Quality

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
3/16" dia.	.105 lbs.	7/16" dia.	.573 lbs.	3/4" dia.	1.685 lbs.	1 3/8" dia.	5.661 lbs.
1/4" dia.	.187 lbs.	1/2" dia.	.749 lbs.	7/8" dia.	2.293 lbs.		
5/16" dia.	.292 lbs.	5/8" dia.	.948 lbs.	1" dia.	2.994 lbs.		
3/8" dia.	.421 lbs.	3/4" dia.	1.170 lbs.	1 1/4" dia.	4.679 lbs.		

HEXAGON, SQUARE AND RECTANGULAR NAVAL BRONZE RODS

AVAILABLE FOR PROMPT MILL SHIPMENT

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC.

ROUND PHOSPHOR BRONZE RODS

Special Free Cutting

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
3/32" dia.	.074 lbs.	7/16" dia.	.577 lbs.	7/8" dia.	2.309 lbs.	1 1/2" dia.	6.786 lbs.
3/16" dia.	.106 lbs.	1/2" dia.	.754 lbs.	1" dia.	3.016 lbs.	1 3/4" dia.	9.236 lbs.
1/4" dia.	.189 lbs.	9/16" dia.	.954 lbs.	1 1/8" dia.	3.817 lbs.	2" dia.	12.060 lbs.
5/16" dia.	.295 lbs.	5/8" dia.	1.178 lbs.	1 1/4" dia.	4.712 lbs.		
3/8" dia.	.424 lbs.	3/4" dia.	1.696 lbs.	1 3/8" dia.	5.702 lbs.		

Phosphor Bronze Welding Rods and Manganese Bronze Welding Rods, see WELDING AND BRAZING SECTION.

ROUND COLD DRAWN *EVERDUR (1010) RODS

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
3/16" dia.	.102 lbs.	7/16" dia.	.556 lbs.	3/4" dia.	1.633 lbs.	1 1/4" dia.	4.536 lbs.
1/4" dia.	.181 lbs.	1/2" dia.	.726 lbs.	7/8" dia.	2.222 lbs.	1 1/2" dia.	6.531 lbs.
5/16" dia.	.283 lbs.	9/16" dia.	.918 lbs.	1" dia.	2.903 lbs.	1 3/4" dia.	8.890 lbs.
3/8" dia.	.408 lbs.	3/4" dia.	1.134 lbs.	1 1/8" dia.	3.674 lbs.	2" dia.	11.610 lbs.

*Trade-mark Reg. U. S. Patent Office.

ROUND 10% AND 12% NICKEL SILVER RODS

Leaded—Free Turning

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
12% Nickel		12% Nickel		10% Nickel		10% Nickel	
1/8" dia.	.046 lbs.	1/4" dia.	.184 lbs.	3/16" dia.	.564 lbs.	3/4" dia.	1.658 lbs.
3/16" dia.	.072 lbs.	5/16" dia.	.288 lbs.	1/2" dia.	.737 lbs.	7/8" dia.	2.257 lbs.
1/4" dia.	.104 lbs.	3/8" dia.	.415 lbs.	5/8" dia.	1.151 lbs.	1" dia.	2.948 lbs.

ROUND HARD DRAWN COPPER RODS

In Random 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.047 lbs.	7/16" dia.	.581 lbs.	7/8" dia.	2.32 lbs.	1 1/2" dia.	6.83 lbs.
3/16" dia.	.107 lbs.	1/2" dia.	.759 lbs.	1" dia.	3.04 lbs.	1 3/8" dia.	8.01 lbs.
1/4" dia.	.190 lbs.	9/16" dia.	.960 lbs.	1 1/8" dia.	3.84 lbs.	1 3/4" dia.	9.29 lbs.
5/16" dia.	.296 lbs.	5/8" dia.	1.190 lbs.	1 1/4" dia.	4.74 lbs.	2" dia.	12.14 lbs.
3/8" dia.	.427 lbs.	3/4" dia.	1.710 lbs.	1 3/8" dia.	5.74 lbs.	2 1/2" dia.	18.97 lbs.

PHOSPHOR BRONZE BUSHINGS
ROUGH CAST AND MACHINED BARS
AVAILABLE FOR IMMEDIATE SHIPMENT
SEE SPECIAL PRODUCTS SECTION

Anaconda Brass, Bronze and Copper Rods may be cut to size to meet your needs.

HEXAGON BRASS RODS

Free Turning Quality

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/8" hex.	.050 lbs.	1/2" hex.	.798 lbs.	1 1/16" hex.	3.602 lbs.	1 3/8" hex.	8.425 lbs.
3/32" hex.	.078 lbs.	5/16" hex.	1.009 lbs.	1 1/8" hex.	4.038 lbs.	1 3/4" hex.	9.771 lbs.
1/16" hex.	.112 lbs.	3/8" hex.	1.246 lbs.	1 3/16" hex.	4.499 lbs.	1 7/8" hex.	11.220 lbs.
7/32" hex.	.153 lbs.	1 1/16" hex.	1.508 lbs.	1 1/4" hex.	4.985 lbs.	2" hex.	12.760 lbs.
1/4" hex.	.199 lbs.	3/4" hex.	1.795 lbs.	1 5/16" hex.	5.496 lbs.	2 1/4" hex.	16.150 lbs.
9/32" hex.	.252 lbs.	13/16" hex.	2.106 lbs.	1 3/8" hex.	6.032 lbs.	2 1/2" hex.	19.940 lbs.
5/16" hex.	.312 lbs.	7/8" hex.	2.443 lbs.	1 7/16" hex.	6.593 lbs.		
3/8" hex.	.449 lbs.	1 5/16" hex.	2.804 lbs.	1 1/2" hex.	7.178 lbs.		
7/16" hex.	.611 lbs.	1" hex.	3.190 lbs.	1 5/8" hex.	7.789 lbs.		

HEXAGON *TOBIN BRONZE RODS

In Random 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/4" hex.	.198 lbs.	5/16" hex.	1.000 lbs.	1" hex.	3.159 lbs.	1 7/16" hex.	6.528 lbs.
5/16" hex.	.309 lbs.	3/8" hex.	1.234 lbs.	1 1/16" hex.	3.566 lbs.	1 1/2" hex.	7.108 lbs.
3/8" hex.	.444 lbs.	1 1/16" hex.	1.493 lbs.	1 1/8" hex.	3.998 lbs.	1 3/8" hex.	8.342 lbs.
7/16" hex.	.605 lbs.	3/4" hex.	1.777 lbs.	1 1/4" hex.	4.936 lbs.	1 3/4" hex.	9.675 lbs.
1/2" hex.	.790 lbs.	7/8" hex.	2.419 lbs.	1 3/8" hex.	5.973 lbs.	2" hex.	12.640 lbs.

*Trade-mark Reg. U. S. Patent Office.

HEXAGON COLD DRAWN *EVERDUR (1010) RODS

In Random 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
7/8" hex.	2.451 lbs.	1" hex.	3.201 lbs.	1 1/4" hex.	5.001 lbs.

*Trade-mark Reg. U. S. Patent Office.

Everdur (1010) Welding Rods, see WELDING AND BRAZING SECTION.

SQUARE BRASS RODS

Free Turning Quality

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/8" square	.058 lbs.	3/8" square	.518 lbs.	3/4" square	2.072 lbs.	1 3/16" square	5.195 lbs.
3/32" square	.090 lbs.	7/16" square	.705 lbs.	13/16" square	2.432 lbs.	1 1/4" square	5.756 lbs.
1/16" square	.130 lbs.	1/2" square	.921 lbs.	7/8" square	2.821 lbs.	1 1/2" square	8.289 lbs.
1/4" square	.230 lbs.	5/8" square	1.166 lbs.	1" square	3.684 lbs.	1 3/4" square	11.280 lbs.
5/16" square	.360 lbs.	3/4" square	1.439 lbs.	1 1/8" square	4.663 lbs.	2" square	14.740 lbs.

SQUARE ARCHITECTURAL EXTRUDED BRONZE RODS

In Random 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/4" square	.230 lbs.	3/8" square	.518 lbs.	5/8" square	1.439 lbs.	1" square	3.684 lbs.
5/16" square	.360 lbs.	1/2" square	.921 lbs.	3/4" square	2.072 lbs.		

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

MONEL
NICKEL
INCONEL

SPECIAL
PROD.
LISTS

STAIN-
LESS

DATA

MISC.



SQUARE COMMERCIAL BRONZE RODS

Leaded Free Cutting Quality

In Random 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
3/16" square	.134 lbs.	5/16" square	.373 lbs.	1/2" square	.954 lbs.	3/4" square	2.146 lbs.
1/4" square	.239 lbs.	3/8" square	.537 lbs.	5/8" square	1.491 lbs.	1" square	3.816 lbs.

SQUARE HARD DRAWN COPPER RODS

In Random 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/4" square	.242 lbs.	1/2" square	.966 lbs.	7/8" square	2.958 lbs.	1 1/2" square	8.694 lbs.
5/16" square	.377 lbs.	5/8" square	1.509 lbs.	1" square	3.864 lbs.	2" square	15.460 lbs.
3/8" square	.543 lbs.	3/4" square	2.174 lbs.	1 1/4" square	6.038 lbs.		

HALF HARD RECTANGULAR BRASS BARS

In Random 8- to 12-Foot Lengths

ITEMS MARKED:

*DRAWN RODS, LEADED

**SHEARED STRIPS, NON-LEADED

***SHEARED STRIPS, LEADED

****SLIT EDGES, NON-LEADED

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/16" x 1/4" ****	.058 lbs.	1/8" x 1/4" *	.115 lbs.	3/16" x 4" ***	2.763 lbs.	3/8" x 1" *	1.382 lbs.
x 3/16" ****	.072 lbs.	x 3/16" *	.144 lbs.	x 5" ***	3.454 lbs.	x 1 1/4" *	1.727 lbs.
x 3/8" ***	.086 lbs.	x 3/8" *	.173 lbs.			x 1 1/2" *	2.072 lbs.
x 1/2" ***	.115 lbs.	x 1/2" *	.230 lbs.	1/4" x 5/16" *	.288 lbs.	x 1 3/4" *	2.418 lbs.
x 5/8" ***	.144 lbs.	x 5/8" *	.288 lbs.	x 3/8" *	.345 lbs.	x 2" *	2.763 lbs.
x 3/4" ***	.173 lbs.	x 3/4" *	.345 lbs.	x 1/2" *	.460 lbs.	x 2 1/2" *	3.454 lbs.
x 7/8" ***	.201 lbs.	x 7/8" *	.403 lbs.	x 5/8" *	.576 lbs.	x 3" *	4.145 lbs.
x 1" **	.230 lbs.	x 1" *	.460 lbs.	x 3/4" *	.691 lbs.	x 3 1/2" *	4.835 lbs.
x 1 1/8" ***	.259 lbs.	x 1 1/8" *	.518 lbs.	x 7/8" *	.806 lbs.	x 4" *	5.526 lbs.
x 1 1/4" ***	.288 lbs.	x 1 1/4" *	.576 lbs.	x 1" *	.921 lbs.	x 5" (sawed- leaded)	6.908 lbs.
x 1 1/2" ***	.345 lbs.	x 1 1/2" *	.691 lbs.	x 1 1/8" *	1.036 lbs.		
x 1 3/4" ***	.403 lbs.	x 1 3/4" *	.806 lbs.	x 1 1/4" *	1.151 lbs.	1/2" x 5/8" *	1.152 lbs.
x 2" **	.460 lbs.	x 2" *	.921 lbs.	x 1 1/2" *	1.382 lbs.	x 3/4" *	1.382 lbs.
x 2 1/2" ***	.575 lbs.	x 2 1/4" ****	1.036 lbs.	x 1 3/4" *	1.612 lbs.	x 1" *	1.842 lbs.
x 3" **	.691 lbs.	x 2 1/2" ****	1.151 lbs.	x 2" *	1.842 lbs.	x 1 1/4" *	2.303 lbs.
x 4" **	.921 lbs.	x 3" ***	1.382 lbs.	x 2 1/4" *	2.072 lbs.	x 1 1/2" *	2.763 lbs.
x 5" **	1.152 lbs.	x 3 1/2" ****	1.612 lbs.	x 2 1/2" *	2.303 lbs.	x 1 3/4" *	3.224 lbs.
		x 4" ***	1.842 lbs.	x 3" *	2.763 lbs.	x 2" *	3.684 lbs.
3/32" x 1/4" *	.086 lbs.	x 5" ***	2.303 lbs.	x 3 1/2" *	3.224 lbs.	x 2 1/2" *	4.605 lbs.
x 3/8" *	.129 lbs.			x 4" *	3.684 lbs.	x 3" *	5.526 lbs.
x 1/2" *	.173 lbs.	3/16" x 1/4" *	.173 lbs.	x 5" *	4.605 lbs.	x 4" *	7.368 lbs.
x 5/8" *	.216 lbs.	x 3/16" *	.216 lbs.				
x 3/4" *	.259 lbs.	x 3/8" *	.259 lbs.	5/16" x 1/2" *	.576 lbs.	5/8" x 3/4" *	1.727 lbs.
x 7/8" *	.302 lbs.	x 1/2" *	.345 lbs.	x 3/8" *	.720 lbs.	x 7/8" *	2.016 lbs.
x 1" *	.345 lbs.	x 5/8" *	.432 lbs.	x 3/4" *	.864 lbs.	x 1" *	2.303 lbs.
x 1 1/4" ****	.432 lbs.	x 3/4" *	.518 lbs.	x 7/8" *	1.007 lbs.	x 1 1/4" *	2.879 lbs.
x 1 1/2" ****	.518 lbs.	x 7/8" *	.604 lbs.	x 1" *	1.151 lbs.	x 1 1/2" *	3.454 lbs.
x 2" ***	.691 lbs.	x 1" *	.691 lbs.	x 1 1/2" *	1.727 lbs.	x 2" *	4.605 lbs.
x 2 1/4" ****	.777 lbs.	x 1 1/4" *	.863 lbs.	x 2" *	2.303 lbs.		
x 2 1/2" ****	.863 lbs.	x 1 1/2" *	1.036 lbs.	x 3" *	3.454 lbs.		
x 3" ***	1.036 lbs.	x 1 3/4" *	1.209 lbs.			3/4" x 1" *	2.763 lbs.
x 4" ***	1.382 lbs.	x 2" *	1.382 lbs.	3/8" x 1/2" *	.691 lbs.	x 1 1/4" *	3.454 lbs.
x 5" ***	1.727 lbs.	x 2 1/4" ****	1.554 lbs.	x 5/8" *	.864 lbs.	x 1 1/2" *	4.145 lbs.
		x 2 1/2" ****	1.727 lbs.	x 3/4" *	1.036 lbs.	x 1 3/4" *	4.835 lbs.
1/8" x 3/16" *	.086 lbs.	x 3" ***	2.072 lbs.	x 7/8" *	1.209 lbs.		

Anaconda Brass, Bronze and Copper Rods may be cut to size to meet your needs.

RECTANGULAR ARCHITECTURAL EXTRUDED BRONZE BARS

In Random 12-Foot Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/8" x 3/4"	.345 lbs.	3/16" x 1 1/4"	.863 lbs.	1/4" x 1 1/4"	1.151 lbs.	3/8" x 1 1/2"	2.072 lbs.
x 1"	.461 lbs.	x 1 1/2"	1.036 lbs.	x 1 1/2"	1.382 lbs.	x 2"	2.763 lbs.
x 1 1/4"	.576 lbs.	x 2"	1.382 lbs.	x 2"	1.842 lbs.		
x 1 1/2"	.691 lbs.	x 2 1/2"	1.727 lbs.	x 2 1/2"	2.303 lbs.	1/2" x 3/4"	1.382 lbs.
x 2"	.921 lbs.					x 1"	1.842 lbs.
x 2 1/2"	1.151 lbs.	1/4" x 3/8"	.345 lbs.	3/8" x 1/2"	.691 lbs.	x 1 1/4"	2.303 lbs.
		x 1/2"	.461 lbs.	x 3/4"	1.036 lbs.	x 1 1/2"	2.763 lbs.
3/16" x 3/4"	.518 lbs.	x 3/4"	.691 lbs.	x 1"	1.382 lbs.	x 2"	3.684 lbs.
x 1"	.691 lbs.	x 1"	.921 lbs.	x 1 1/4"	1.727 lbs.		

RECTANGULAR COMMERCIAL BRONZE BARS

In Random 12-Foot Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/8" x 3/8"	.179 lbs.	3/16" x 3/4"	.537 lbs.	1/4" x 1 1/2"	1.431 lbs.	3/8" x 1 1/4"	1.789 lbs.
x 1/2"	.239 lbs.	x 1"	.716 lbs.	x 2"	1.908 lbs.	x 1 1/2"	2.146 lbs.
x 3/8"	.298 lbs.	x 1 1/4"	.894 lbs.			x 2"	2.862 lbs.
x 3/4"	.358 lbs.	x 1 1/2"	1.073 lbs.	5/16" x 1/2"	.596 lbs.	1/2" x 5/8"	1.193 lbs.
x 1"	.477 lbs.	x 2"	1.431 lbs.	x 3/8"	.745 lbs.	x 3/4"	1.431 lbs.
x 1 1/4"	.596 lbs.			x 3/4"	.894 lbs.	x 1"	1.908 lbs.
x 1 1/2"	.716 lbs.	1/4" x 3/8"	.358 lbs.	x 1"	1.193 lbs.	x 1 1/4"	2.385 lbs.
x 2"	.954 lbs.	x 1/2"	.477 lbs.	3/8" x 1/2"	.716 lbs.	x 1 1/2"	2.862 lbs.
		x 3/8"	.596 lbs.	x 3/8"	.895 lbs.	x 2"	3.816 lbs.
3/16" x 3/8"	.268 lbs.	x 3/4"	.716 lbs.	x 3/4"	1.073 lbs.	3/4" x 1 1/2"	4.293 lbs.
x 1/2"	.358 lbs.	x 1"	.954 lbs.	x 1"	1.431 lbs.		
x 3/8"	.447 lbs.	x 1 1/4"	1.192 lbs.				

RECTANGULAR HARD DRAWN COPPER STRIPS AND BARS

In Random 12-Foot Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/16" x 1/2"	.121 lbs.	1/8" x 2"	.966 lbs.	1/4" x 3/4"	.724 lbs.	3/8" x 1"	1.449 lbs.
x 3/8"	.151 lbs.	x 2 1/2"	1.208 lbs.	x 7/8"	.845 lbs.	x 1 1/4"	1.811 lbs.
x 3/4"	.181 lbs.	x 3"	1.449 lbs.	x 1"	.966 lbs.	x 1 1/2"	2.174 lbs.
x 1"	.241 lbs.	x 4"	1.932 lbs.	x 1 1/4"	1.208 lbs.	x 1 3/4"	2.536 lbs.
x 3"	.724 lbs.			x 1 1/2"	1.449 lbs.	x 2"	2.898 lbs.
x 4"	.966 lbs.	3/16" x 1/2"	.362 lbs.	x 1 3/4"	1.691 lbs.	x 2 1/2"	3.623 lbs.
		x 5/8"	.453 lbs.	x 2"	1.932 lbs.	x 3"	4.347 lbs.
3/32" x 3/8"	.136 lbs.	x 3/4"	.543 lbs.	x 2 1/4"	2.174 lbs.	x 4"	5.796 lbs.
x 1/2"	.181 lbs.	x 1"	.724 lbs.	x 2 1/2"	2.415 lbs.		
x 3/4"	.272 lbs.	x 1 1/4"	.906 lbs.	x 2 3/4"	2.657 lbs.	1/2" x 3/4"	1.449 lbs.
x 1"	.362 lbs.	x 1 1/2"	1.087 lbs.	x 3"	2.898 lbs.	x 1"	1.932 lbs.
x 1 1/4"	.453 lbs.	x 1 3/4"	1.268 lbs.	x 3 1/2"	3.381 lbs.	x 1 1/2"	2.898 lbs.
x 1 1/2"	.543 lbs.	x 2"	1.449 lbs.	x 4"	3.864 lbs.	x 2"	3.864 lbs.
		x 2 1/2"	1.811 lbs.	x 5"	4.830 lbs.	x 2 1/2"	4.830 lbs.
1/8" x 3/8"	.181 lbs.	x 2 3/4"	1.992 lbs.	x 6"	5.796 lbs.	x 3"	5.796 lbs.
x 1/2"	.241 lbs.	x 3"	2.174 lbs.			x 4"	7.728 lbs.
x 3/8"	.302 lbs.	x 3 1/2"	2.536 lbs.	5/16" x 1"	1.208 lbs.		
x 3/4"	.362 lbs.	x 4"	2.898 lbs.	x 1 1/2"	1.812 lbs.	3/4" x 1 1/2"	4.347 lbs.
x 7/8"	.423 lbs.	x 6"	4.347 lbs.	x 2"	2.416 lbs.	x 2"	5.796 lbs.
x 1"	.483 lbs.						
x 1 1/4"	.604 lbs.	1/4" x 1/2"	.483 lbs.	3/8" x 1/2"	.725 lbs.		
x 1 1/2"	.724 lbs.	x 5/8"	.604 lbs.	x 3/4"	1.087 lbs.		

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

SHAPES

BRASS
BRONZE
COPPER

PIPE
TUBE
VALVES
FITTINGS

FASTER
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC.



SOFT BRASS WIRE

In Coils about 40 Pounds

SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot
.020 (No. 24)	.001 lbs.	.050 (No. 16)	.007 lbs.	.091 (No. 11)	.024 lbs.	.182 (No. 5)	.095 lbs.
.025 (No. 22)	.002 lbs.	.057 (No. 15)	.009 lbs.	.102 (No. 10)	.030 lbs.	.250 (1/4")	.181 lbs.
.032 (No. 20)	.003 lbs.	.064 (No. 14)	.012 lbs.	.114 (No. 9)	.038 lbs.		
.040 (No. 18)	.005 lbs.	.072 (No. 13)	.015 lbs.	.128 (No. 8)	.047 lbs.		
.045 (No. 17)	.006 lbs.	.081 (No. 12)	.019 lbs.	.162 (No. 6)	.075 lbs.		

SPRING BRASS WIRE

In Coils about 40 Pounds

SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot
.025 (No. 22)	.002 lbs.	.050 (No. 16)	.007 lbs.	.091 (No. 11)	.024 lbs.	.162 (No. 6)	.075 lbs.
.032 (No. 20)	.003 lbs.	.057 (No. 15)	.009 lbs.	.102 (No. 10)	.030 lbs.	.182 (No. 5)	.095 lbs.
.036 (No. 19)	.004 lbs.	.064 (No. 14)	.012 lbs.	.114 (No. 9)	.038 lbs.	.204 (No. 4)	.120 lbs.
.040 (No. 18)	.005 lbs.	.072 (No. 13)	.015 lbs.	.128 (No. 8)	.047 lbs.		
.045 (No. 17)	.006 lbs.	.081 (No. 12)	.019 lbs.	.144 (No. 7)	.060 lbs.		

GRADE "A" SPRING PHOSPHOR BRONZE WIRE

In Coils about 40 to 50 Pounds

SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot
.020 (No. 24)	.001 lbs.	.045 (No. 17)	.006 lbs.	.081 (No. 12)	.020 lbs.	.162 (No. 6)	.079 lbs.
.025 (No. 22)	.002 lbs.	.050 (No. 16)	.008 lbs.	.091 (No. 11)	.025 lbs.	.182 (No. 5)	.100 lbs.
.032 (No. 20)	.003 lbs.	.057 (No. 15)	.010 lbs.	.102 (No. 10)	.031 lbs.		
.036 (No. 19)	.004 lbs.	.064 (No. 14)	.012 lbs.	.114 (No. 9)	.040 lbs.		
.040 (No. 18)	.005 lbs.	.072 (No. 13)	.016 lbs.	.128 (No. 8)	.050 lbs.		

SOFT BARE COPPER WIRE

In Coils (Weight of Coils Varies with Gauge)

SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot
.020 (No. 24)	.0012 lbs.	.032 (No. 20)	.0032 lbs.	.064 (No. 14)	.012 lbs.	.114 (No. 9)	.040 lbs.
.022 (No. 23)	.0015 lbs.	.036 (No. 19)	.0039 lbs.	.081 (No. 12)	.020 lbs.	.128 (No. 8)	.050 lbs.
.025 (No. 22)	.0019 lbs.	.040 (No. 18)	.0049 lbs.	.091 (No. 11)	.025 lbs.	.144 (No. 7)	.063 lbs.
.028 (No. 21)	.0024 lbs.	.050 (No. 16)	.0079 lbs.	.102 (No. 10)	.031 lbs.	.250 (1/4")	.190 lbs.

Copper Wire can also be furnished on spools; prompt shipment.

SPRING TEMPER 18% NICKEL SILVER WIRE

In Coils about 40 Pounds

SIZE Inches B&S Gauge	APPROX. WT. Per Foot	SIZE Inches B&S Gauge	APPROX. WT. Per Foot
.020 (No. 24)	.001 lbs.	.064 (No. 14)	.012 lbs.
.032 (No. 20)	.003 lbs.	.128 (No. 8)	.049 lbs.
.040 (No. 18)	.005 lbs.		



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

INDEX—MONEL • NICKEL • INCONEL • ROD AND WIRE

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Rod forms of Inco Nickel Base Alloys meet a wide variety of industry's needs for materials to provide high corrosion resistance combined with good mechanical properties. The basic grades of Monel, Nickel, and Inconel are supplemented by the special purpose alloys such as grades "R" and "K" Monel, Duranickel, Permanickel, Low Carbon Nickel and Inconel X, which are described on following pages.

Common to all the Inco alloys are the qualities of high strength, toughness, wear and corrosion resistance.

MONEL RODS

Monel is a general purpose Inco alloy which has an inherent silvery white color, is heat and scale resistant up to 1000° F., is machinable, and may be worked hot or cold. Special grades have been developed to attain specific qualities—"K" Monel (heat treatable) for extra high strength and hardness, "R" Monel for high speed machining, and "326" Monel for pickling service and non-magnetic electronic applications.

Hot Rolled quality—Has a thin black oxide finish in the standard as-rolled temper carried in stock. Used for tie rods, large bolts, machined parts, etc. Also furnished for mill delivery in soft temper for severe bending and forming operations and in soft bright pickled finish. Special purpose hot rolled rod offered for mill shipment also include:

Forging quality—Surface machined to remove all oxide and roll marks, for difficult forging.

Special bolt tolerance—For hot upsetting in making bolts, rivets, etc., with hot upset heads.

Cold Drawn quality—Has bright finish, free from oxide, close size tolerance, hard surface such as is desirable for pump rods and shafts. Stocked in as-drawn temper stress equalized. Available from mill in soft temper. See propeller shafting for special straightness in long lengths. For highest strength see heat treatable grade "K".

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

MONEL
NICKEL
INCONEL

STAIN-
LESS

DATA

MISC.



HOT ROLLED ROUND MONEL RODS

Thin Black Oxide Finish

In Random 6- to 18-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/4" dia.	.19 lbs.	7/8" dia.	2.31 lbs.	1 1/2" dia.	6.79 lbs.	2 3/8" dia.	20.78 lbs.
3/16" dia.	.29 lbs.	1 3/16" dia.	2.65 lbs.	1 5/8" dia.	7.36 lbs.	2 1/2" dia.	22.81 lbs.
1/8" dia.	.42 lbs.	1" dia.	3.02 lbs.	1 3/4" dia.	7.96 lbs.	2 1/4" dia.	24.93 lbs.
3/16" dia.	.58 lbs.	1 1/16" dia.	3.40 lbs.	1 3/4" dia.	9.24 lbs.	3" dia.	27.14 lbs.
1/2" dia.	.75 lbs.	1 1/8" dia.	3.82 lbs.	1 7/8" dia.	10.60 lbs.	3 1/4" dia.	31.86 lbs.
5/16" dia.	.95 lbs.	1 3/16" dia.	4.25 lbs.	2" dia.	12.06 lbs.	3 3/8" dia.	34.35 lbs.
3/8" dia.	1.18 lbs.	1 1/4" dia.	4.71 lbs.	2 1/8" dia.	13.62 lbs.	3 1/2" dia.	36.94 lbs.
1 1/16" dia.	1.42 lbs.	1 5/16" dia.	5.20 lbs.	2 1/4" dia.	15.27 lbs.	3 3/4" dia.	42.41 lbs.
3/4" dia.	1.70 lbs.	1 3/8" dia.	5.70 lbs.	2 3/8" dia.	17.01 lbs.	4" dia.	48.25 lbs.
1 1/16" dia.	1.99 lbs.	1 7/16" dia.	6.23 lbs.	2 1/2" dia.	18.85 lbs.		

We can furnish, from our mill, Rounds up to 10" diameter. Sizes over 4 1/2" diameter are forged and turned in 1/8" increments.

COLD DRAWN ROUND MONEL RODS

Bright Finish—Close Tolerance

Regular Grade

In Random 6- to 16-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/2" dia.	.75 lbs.	1 1/16" dia.	3.40 lbs.	1 3/8" dia.	7.96 lbs.	2 1/4" dia.	15.27 lbs.
3/16" dia.	.95 lbs.	1 1/8" dia.	3.82 lbs.	1 1/2" dia.	8.58 lbs.	2 3/8" dia.	17.01 lbs.
3/8" dia.	1.18 lbs.	1 3/16" dia.	4.25 lbs.	1 3/4" dia.	9.24 lbs.	2 1/2" dia.	18.85 lbs.
1 1/16" dia.	1.42 lbs.	1 1/4" dia.	4.71 lbs.	1 3/4" dia.	9.91 lbs.	2 3/8" dia.	20.78 lbs.
3/4" dia.	1.70 lbs.	1 5/16" dia.	5.20 lbs.	1 7/8" dia.	10.60 lbs.	2 3/4" dia.	22.81 lbs.
1 3/16" dia.	1.99 lbs.	1 3/8" dia.	5.70 lbs.	1 5/8" dia.	11.32 lbs.	2 7/8" dia.	24.93 lbs.
7/8" dia.	2.31 lbs.	1 7/16" dia.	6.23 lbs.	2" dia.	12.06 lbs.	3" dia.	27.14 lbs.
1 1/16" dia.	2.65 lbs.	1 1/2" dia.	6.79 lbs.	2 1/8" dia.	13.62 lbs.		
1" dia.	3.02 lbs.	1 7/16" dia.	7.36 lbs.	2 1/2" dia.	14.52 lbs.		

Sizes from .051 to 4" diameter available from mill.

COLD DRAWN ROUND GRADE "R" MONEL RODS

Bright Finish—Close Tolerance

Machining Quality

For Automatic and High Speed Machining

In Random 6- to 13-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/16" dia.	.012 lbs.	3/32" dia.	.239 lbs.	1 1/16" dia.	1.42 lbs.	1 3/16" dia.	4.25 lbs.
3/32" dia.	.027 lbs.	3/16" dia.	.297 lbs.	3/4" dia.	1.70 lbs.	1 1/4" dia.	4.71 lbs.
1/8" dia.	.047 lbs.	3/8" dia.	.428 lbs.	7/8" dia.	2.31 lbs.	1 1/2" dia.	6.79 lbs.
5/32" dia.	.074 lbs.	7/16" dia.	.583 lbs.	1 5/16" dia.	2.65 lbs.	1 3/4" dia.	9.24 lbs.
3/16" dia.	.107 lbs.	1/2" dia.	.754 lbs.	1" dia.	3.02 lbs.	2" dia.	12.06 lbs.
7/32" dia.	.146 lbs.	5/16" dia.	.954 lbs.	1 1/16" dia.	3.40 lbs.		
1/4" dia.	.190 lbs.	3/8" dia.	1.178 lbs.	1 1/8" dia.	3.82 lbs.		

INTERMEDIATE SIZES AVAILABLE FROM THE MILL

Physical properties of Grade "R" Monel are not as high as regular grade Monel. It should not, therefore, be used where maximum strength is the prime consideration such as shafting or tie rods, nor where hot forging or upsetting is involved.

Monel, Nickel and Inconel Rods may be cut to size to meet your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

MONEL PROPELLER SHAFTS—SPECIALLY STRAIGHTENED*

In Stock Lengths 18 Feet

(We cut to required length)

Much stronger than any alloy of comparable resistance to marine corrosion, with a high degree of resistance to fatigue and impact. For severe power requirements such as 1000 hp. or more refer to "K" Monel as used on many famous Gold Cup boats. See Page 69.

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
3/4" dia.	1.70 lbs.	1 1/4" dia.	4.71 lbs.	1 3/4" dia.	9.24 lbs.	2 1/2" dia.	18.85 lbs.
7/8" dia.	2.31 lbs.	1 3/8" dia.	5.70 lbs.	1 7/8" dia.	10.60 lbs.	2 3/4" dia.	22.81 lbs.
1" dia.	3.02 lbs.	1 1/2" dia.	6.79 lbs.	2" dia.	12.06 lbs.	3" dia.	27.14 lbs.
1 1/8" dia.	3.82 lbs.	1 5/8" dia.	7.96 lbs.	2 1/4" dia.	15.27 lbs.		

*Special (precision) straightness tolerance, sizes 1/2" to 1 1/8" incl. .005" in 42" span. · Over 1 1/8" to 1 1/2" incl. .006" in 42" span. · Over 1 1/2" to 2 1/2" incl. .007" in 42" span. · Over 2 1/2" to 4" incl. .008" in 42" span.

Available from the mill: Cold Drawn Shafts up to 4" diameter. Over 4" diameter to 10" diameter can be furnished as Semi-Smooth Shafts or Smooth Finished Machined Shafts.

We do not furnish shafts machined with tapers, keyways or threads. The pamphlet "How To Get The Most From Your New Monel Shaft" describes the proper methods for machining keyways.

For cotter pins, lag screws and other Monel fasteners, see **FASTENERS SECTION**.

HOT ROLLED HEXAGON MONEL RODS

Thin Black Oxide Finish

In Random 6- to 18-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/2" hex.	.83 lbs.	3/4" hex.	1.87 lbs.	1 1/8" hex.	3.75 lbs.	1 1/2" hex.	7.48 lbs.
5/8" hex.	1.05 lbs.	7/8" hex.	2.55 lbs.	1 1/4" hex.	4.21 lbs.	1 3/8" hex.	8.78 lbs.
3/4" hex.	1.30 lbs.	1 1/8" hex.	2.92 lbs.	1 1/2" hex.	5.20 lbs.	2" hex.	13.30 lbs.
1 1/8" hex.	1.57 lbs.	1" hex.	3.33 lbs.	1 3/8" hex.	6.87 lbs.		

On mill shipments we can furnish Hexagon Rods rolled to 2 1/8" hex. and from 2 1/4" hex. to 8" hex. as Smooth Forged in 1/16" increments.

COLD DRAWN HEXAGON MONEL RODS

Bright Finish—Regular Grade

In Random 6- to 16-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/2" hex.	.83 lbs.	3/4" hex.	1.87 lbs.	1 1/4" hex.	5.20 lbs.	1 3/4" hex.	10.18 lbs.
5/8" hex.	1.05 lbs.	7/8" hex.	2.55 lbs.	1 1/2" hex.	7.48 lbs.		
3/4" hex.	1.30 lbs.	1" hex.	3.33 lbs.	1 5/8" hex.	8.78 lbs.		

Sizes from 1/16" hex. to 2" hex. available from mill.

COLD DRAWN HEXAGON GRADE "R" MONEL RODS

Bright Finish—For Automatic and High Speed Machining

In Random 6- to 16-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/4" hex.	.21 lbs.	5/8" hex.	1.05 lbs.	7/8" hex.	2.55 lbs.	1 1/4" hex.	5.20 lbs.
3/16" hex.	.32 lbs.	3/4" hex.	1.30 lbs.	1 1/8" hex.	2.92 lbs.	1 1/2" hex.	7.48 lbs.
1/8" hex.	.47 lbs.	1 1/8" hex.	1.57 lbs.	1" hex.	3.33 lbs.	1 3/8" hex.	8.78 lbs.
1/16" hex.	.64 lbs.	3/4" hex.	1.87 lbs.	1 1/4" hex.	3.75 lbs.		
1/2" hex.	.83 lbs.	1 1/8" hex.	2.20 lbs.	1 1/2" hex.	4.21 lbs.		

C. D. Hexagons as small as 1/16" and as large as 2" available from the mill.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

MONEL
NICKEL
INCONEL

SPECIAL
PRO-
DUCTS

STAIN-
LESS

MISC.



HOT ROLLED SQUARE MONEL RODS

Thin Black Oxide Finish

In Random 6- to 18-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
5/16" square	.37 lbs.	1/2" square	.96 lbs.	7/8" square	2.94 lbs.	1 1/2" square	8.64 lbs.
3/8" square	.54 lbs.	5/8" square	1.50 lbs.	1" square	3.84 lbs.	2" square	15.36 lbs.
7/16" square	.73 lbs.	3/4" square	2.16 lbs.	1 1/4" square	6.00 lbs.		

On mill shipments we can furnish Squares rolled to 2 1/4" and Smooth Forged from 2 3/8" to 6" in 1/8" increments.

COLD DRAWN SQUARE MONEL RODS

Bright Finish

Regular Grade

In Random 6- to 16-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
3/16" square	.13 lbs.	3/8" square	.54 lbs.	5/8" square	1.50 lbs.	1 1/4" square	6.00 lbs.
1/4" square	.24 lbs.	1/2" square	.96 lbs.	3/4" square	2.16 lbs.	1 1/2" square	8.64 lbs.
5/16" square	.37 lbs.	3/16" square	1.21 lbs.	1" square	3.84 lbs.		

Sizes from 1/64" square to 2 5/8" square available from mill.

COLD DRAWN SQUARE GRADE "R" MONEL RODS

Bright Finish

Machining Quality

Available from mill only in Random Lengths 6 feet to 13 feet, in sizes from 1/64" to 2" square.

HOT ROLLED RECTANGULAR MONEL RODS

Thin Black Oxide Finish

In Random 6- to 18-Foot Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/8" x 1/2"	.24 lbs.	3/16" x 1 1/2"	1.08 lbs.	3/8" x 3/4"	1.08 lbs.	5/8" x 3/4"	1.80 lbs.
x 5/8"	.30 lbs.	x 2"	1.44 lbs.	x 1"	1.44 lbs.	x 1"	2.40 lbs.
x 3/4"	.36 lbs.	x 2 1/2"	1.80 lbs.	x 1 1/4"	1.80 lbs.	x 1 1/4"	3.00 lbs.
x 1"	.48 lbs.			x 1 1/2"	2.16 lbs.	x 1 1/2"	3.60 lbs.
x 1 1/4"	.60 lbs.	1/4" x 1/2"	.48 lbs.	x 1 3/4"	2.52 lbs.	x 2"	4.80 lbs.
x 1 1/2"	.72 lbs.	x 3/4"	.72 lbs.	x 2"	2.88 lbs.	x 2 1/2"	6.00 lbs.
x 2"	.96 lbs.	x 1"	.96 lbs.	x 2 1/2"	3.60 lbs.		
x 2 1/4"	1.08 lbs.	x 1 1/4"	1.20 lbs.	x 3"	4.32 lbs.	3/4" x 1"	2.88 lbs.
x 2 1/2"	1.20 lbs.	x 1 1/2"	1.44 lbs.	x 4"	5.76 lbs.	x 1 1/2"	4.32 lbs.
x 3"	1.44 lbs.	x 1 3/4"	1.68 lbs.			x 2"	5.76 lbs.
x 4"	1.92 lbs.	x 2"	1.92 lbs.	1/2" x 5/8"	1.20 lbs.	x 2 1/2"	7.20 lbs.
		x 2 1/2"	2.40 lbs.	x 1"	1.92 lbs.	x 3"	8.64 lbs.
3/16" x 1/2"	.36 lbs.	x 3"	2.88 lbs.	x 1 1/4"	2.40 lbs.	x 4"	11.52 lbs.
x 5/8"	.45 lbs.	x 4"	3.84 lbs.	x 1 1/2"	2.88 lbs.		
x 3/4"	.54 lbs.			x 2"	3.84 lbs.	1" x 2"	7.68 lbs.
x 7/8"	.63 lbs.	5/16" x 1"	1.20 lbs.	x 2 1/2"	4.80 lbs.	x 3"	11.52 lbs.
x 1"	.72 lbs.	3/8" x 1/2"	.72 lbs.	x 3"	5.76 lbs.		
x 1 1/4"	.90 lbs.			x 4"	7.68 lbs.		

Flats up to 2" thick and 10" wide available from the mill.

COLD DRAWN RECTANGULAR MONEL RODS

Bright Finish

Available from mill only. Sizes from 1/4" to 1 3/4" in thickness, 1/2" to 4" in width, in random lengths.

Other sizes can be specially produced.

Monel, Nickel and Inconel Rods may be cut to size to suit your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

MONEL WIRE

The versatility of Monel in wire form is best exemplified by a partial listing of some popular uses for this material. The few items of wire listed below are carried in stock to satisfy specific demands. The increased use by manufacturers of wire in various tempers for wire cloth and wire rope—fishing lines, toasters, coffee makers, appliances and for electrical parts—cold headed fasteners of all types and for heat resistant parts, are but an indication of its acceptance where corrosion resistance, appearance and specialized physical properties are demanded at reasonable cost.

Promptly available in a broad range of sizes (.001" diameter up). Cold Drawn round wire and shapes such as hexagons, squares, triangles, etc. Tempers from soft to spring are offered to meet individual needs for a strong, workable, bright finish, corrosion-resistant wire. Wire also available in Grades "K" and "R" and in Nickel, Duranickel, Permanickel, Inconel.

MONEL TIE WIRE

(For suspended ceilings)

Durability, strength, and ease of application are the basic factors that influence the selection of a tie wire. Monel Tie Wire combines all of these qualities. It is highly resistant to corrosion by lime, cement, plaster, and atmospheric gases. Because of its high tensile strength and pliability, it can be installed more rapidly and tightened without breaking. Monel Tie Wire does not require double looping, ordinarily specified as a safety factor.

In 25 lb. hairpin hanks	
SIZE Inches	APPROX. WT. Per 1000 Ft.
.047 dia.	6.5 lbs.

MONEL LOCK (SAFETY) WIRE

Used to lock castellated nuts on machinery which is subject to vibration (aircraft engines, power apparatus, etc.). Ductility, strength, and corrosion resistance of Monel wire account for its selection for this service.

Furnished in any required diameter in coils or on spools.

TYPE 326 MONEL LOCK (SAFETY) WIRE

A non-magnetic grade of Monel lock wire, with the same characteristics described above.

DIAMETER Inches	APPROX. WT. Per Foot
.032" on 5-lb. spools	.0031 lbs.
.040" on 5-lb. spools	.0048 lbs.

Other diameters supplied as required, either spooled or coiled. Mill delivery.

"K" MONEL RODS

Non-magnetic alloy heat treatable to very high strength and hardness. Useful for wearing sleeves, high strength shafting, valve trim, highly stressed parts as exemplified by use for the stems of large sluice gates that control several of the country's largest dams. Non-magnetic properties important in aeronautical instruments where strong, wear- and corrosion-resistant parts are needed. Available from mill only.

Note: Rods are produced within limits shown, but size increments vary and are not listed.

Hot Rolled: Rounds— $\frac{1}{4}$ " dia. to $4\frac{1}{2}$ " dia.

Hexagons— $\frac{3}{8}$ " hex. to $2\frac{1}{8}$ " hex. and smooth forged $2\frac{1}{4}$ " hex. to $4\frac{1}{2}$ " hex.

Squares— $\frac{5}{16}$ " sq. to 1" sq.

Flats— $\frac{1}{4}$ " x $\frac{1}{2}$ " to 1" x $3\frac{3}{4}$ "

Semi-Smooth Shafts—3" dia. through 10" dia.

Cold Drawn: Rounds—.001 dia. through 3" dia.

Hexagons— $\frac{1}{16}$ " hex. through 1" hex.

PROPELLER SHAFTS

Cold Drawn—Precision Straightened— $\frac{1}{2}$ " dia. through $3\frac{1}{2}$ " dia. available from mill for high speed shafting use—such as specially powered racing boats. Above $3\frac{1}{2}$ " dia. supplied as semi-smooth Hot Rolled.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE AND MILL ITEMS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAIN-
LESS

DATA

MISC.

WIRE



"KR" MONEL RODS

Free Machining Grade of "K" Monel for Parts to be Heat Treated After Machining

Hot Rolled: Rounds— $\frac{1}{4}$ " dia. to 3" dia.

Hexagons— $\frac{3}{8}$ " hex. to 2" hex.

Squares— $\frac{3}{8}$ " sq. to 1" sq.

Cold Drawn: Rounds—.001" dia. wire through 3" dia. rods

Hexagons— $\frac{1}{16}$ " hex. through 1" hex.

NICKEL RODS

Commercially pure (99% Plus) Nickel in wrought form. Excellent corrosion resistance, maintenance of product purity, good thermal conductivity, high strength and ductility both at sub-zero and high temperatures. For highest strengths see Duranickel and Permanickel. For specially soft grade see Low Carbon Nickel.

HOT ROLLED NICKEL RODS

Thin Black Oxide Finish

Mill Delivery

Note: Rods are produced within limits shown but size increments vary and are not listed.

Rounds— $\frac{1}{4}$ " dia. to $4\frac{1}{2}$ " dia.

Hexagons— $\frac{3}{8}$ " hex. to $2\frac{1}{8}$ " hex.

Squares— $\frac{5}{16}$ " sq. to $2\frac{1}{4}$ " sq.

Flats—Thicknesses from $\frac{1}{8}$ " to 2", widths from $\frac{1}{2}$ " to 10", depending upon section.

Smooth forged rounds to 10" diameter, hexagons to 8" hexagon, squares to 6" square, and flats up to 6" thick and up to 10" wide are also produced.

COLD DRAWN ROUND NICKEL RODS

Bright Finish—Close Tolerance

In Random 6- to 16-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
$\frac{1}{8}$ " dia.	.047 lbs.	$\frac{3}{8}$ " dia.	.42 lbs.	$\frac{7}{8}$ " dia.	2.31 lbs.	$1\frac{3}{4}$ " dia.	9.24 lbs.
$\frac{5}{32}$ " dia.	.074 lbs.	$\frac{1}{2}$ " dia.	.75 lbs.	1" dia.	3.02 lbs.	2" dia.	12.06 lbs.
$\frac{3}{16}$ " dia.	.107 lbs.	$\frac{5}{8}$ " dia.	1.18 lbs.	$1\frac{1}{4}$ " dia.	4.71 lbs.	$2\frac{1}{4}$ " dia.	15.27 lbs.
$\frac{1}{4}$ " dia.	.190 lbs.	$1\frac{1}{16}$ " dia.	1.42 lbs.	$1\frac{3}{8}$ " dia.	5.70 lbs.	$2\frac{1}{2}$ " dia.	18.85 lbs.
$\frac{5}{16}$ " dia.	.297 lbs.	$\frac{3}{4}$ " dia.	1.70 lbs.	$1\frac{1}{2}$ " dia.	6.79 lbs.		

Other sizes of Nickel Rods ranging from .032 diameter to and including 4" diameter can be furnished from the mill.

Precision Straightened Shafting is available for use in mixing equipment and for pump rods.

We can also furnish Nickel Hexagons, Squares and Flats from the mill.

NICKEL WIRE

Mill Delivery

Full Range of Sizes and Shapes Can be Supplied

NICKEL PLATER'S BARS AND CORES

Mill Delivery

Specially produced for use as a base in gold-filled jewelry.

Resists wear, stress, corrosion by body acids and will not discolor the gold. Makes an ideal foundation for a gold lamination for such jewelry parts as bracelets, chains, eyeglass frames, etc.

Smooth surface finish for even bonding with precious metals. Rectangular bar and round core sizes to your specifications. Consult us for mill limits.

LOW CARBON NICKEL

Low carbon content provides maximum softness and low rate of work hardening. Useful for plater bars as base metal under gold, for high temperature service as carbon determination boats, hot caustic conditions, soft tubing, etc. Available from mill in sizes offered in regular Nickel.

Monel, Nickel and Inconel Rods may be cut to size to meet your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

HEAT TREATABLE GRADES OF NICKEL (FOR EXTRA STRENGTH AND HARDNESS)

DURANICKEL

(Formerly known as Z Nickel)

Heat treatable alloy of Nickel. Excellent spring properties at elevated temperatures. Useful for plastic extrusion dies and cylinders. Hardening effect of heat treatment is superimposed on the hardening produced by cold work.

Available from mill only.

Hot Rolled: Rounds—(Thin black oxide finish)— $\frac{1}{4}$ " dia. to $4\frac{1}{2}$ " dia. Larger sizes forged and rough turned.

Hexagons— $\frac{3}{8}$ " hex. to $2\frac{1}{8}$ " hex. and smooth hex. forged $2\frac{1}{4}$ " hex. to $4\frac{1}{2}$ " hex.

Squares— $\frac{3}{16}$ " sq. to 1" sq.

Flats— $\frac{1}{4}$ " to $\frac{7}{8}$ " thicknesses, widths $\frac{1}{2}$ " to $3\frac{3}{4}$ "

Consult us for increments of sizes produced within limits shown.

Cold Drawn Wire and Rod: Rounds—.001" dia. to 3" dia. rod

Hexagons— $\frac{1}{16}$ " hex. to 1" hex.

Consult us for size increments produced within limits shown, and for size limits on squares and shapes. Larger sizes can be considered.

PERMANICKEL

(Formerly known as Z Nickel Type B)

High physical properties similar to Duranickel. Indicated choice if improved electrical conductivity required or for resonance such as in tuning forks.

Mill availability, same sizes as Duranickel. See above.

SPECIAL PURPOSE GRADES OF NICKEL include "D" and "E" Nickel as well as various alloys for electronic applications. Information upon request.

INCONEL RODS

High Nickel (80%) Chromium (14%) alloy with exceptional resistance to heat and corrosion. Good spring properties to temperatures approaching 1000°F. Non-magnetic. Widely used for such diverse uses as furnace and heat treating equipment to 2100°F, chemical and food processing apparatus, jewelry, etc. Readily fabricated by common methods. For exceptional stress, see Inconel X, Page 72.

Hot Rolled Quality—As rolled or soft temper rod has thin adherent oxide coating. Annealed and pickled rod has oxide removed by pickling, temper soft. This is the quality, well suited for welding, carried in stock.

Cold Drawn Quality—Bright finish, free from oxide, but not suitable for pump rods without being ground to secure proper finish.

HOT ROLLED ROUND INCONEL RODS—ANNEALED AND PICKLED

White Pickled Finish

In Random 6- to 18-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
$\frac{1}{4}$ " dia.	.18 lbs.	$\frac{1}{2}$ " dia.	.73 lbs.	1" dia.	2.91 lbs.	2" dia.	11.65 lbs.
$\frac{3}{8}$ " dia.	.28 lbs.	$\frac{5}{8}$ " dia.	1.14 lbs.	$1\frac{1}{4}$ " dia.	4.55 lbs.	$2\frac{1}{2}$ " dia.	18.20 lbs.
$\frac{1}{2}$ " dia.	.41 lbs.	$\frac{3}{4}$ " dia.	1.64 lbs.	$1\frac{1}{2}$ " dia.	6.55 lbs.		
$\frac{3}{4}$ " dia.	.56 lbs.	$\frac{7}{8}$ " dia.	2.23 lbs.	$1\frac{3}{4}$ " dia.	8.92 lbs.		

Other sizes up to $4\frac{1}{2}$ " diameter available from mill as Rolled Stock and 4" to 12" diameter can be furnished as Forged Rounds in $\frac{1}{8}$ " increments.

Hexagons can be furnished from $\frac{3}{8}$ " to $2\frac{1}{8}$ " Rolled and from $2\frac{1}{4}$ " to 8" as Smooth Forged in $\frac{1}{8}$ " increments.

Squares can be furnished from $\frac{3}{16}$ " to $2\frac{1}{4}$ " Rolled and from $2\frac{3}{8}$ " to 6" as Smooth Forged in $\frac{1}{8}$ " increments.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE AND MILL ITEMS

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AND
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MONEL
NICKEL
INCONEL

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC.

NET



COLD DRAWN ROUND INCONEL RODS

Bright Finish

For mill delivery only

Wire Sizes—.001" dia. up to 1/2" dia.

Rounds— 1/2" to 2" dia. in 1/16" increments
2 1/8" to 2 1/2" dia. in 1/8" increments

HOT ROLLED RECTANGULAR INCONEL RODS—ANNEALED AND PICKLED

White Pickled Finish

In Random 6- to 18-Foot Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/8" x 1"	.46 lbs.	3/16" x 1"	.69 lbs.	1/4" x 1"	.92 lbs.	3/8" x 1 1/2"	2.08 lbs.
x 1 1/2"	.69 lbs.	x 1 1/2"	1.04 lbs.	x 1 1/2"	1.39 lbs.	x 2"	2.77 lbs.
x 2"	.92 lbs.	x 2"	1.39 lbs.	x 2"	1.85 lbs.	x 2 1/2"	3.46 lbs.
		x 2 1/2"	1.73 lbs.	x 2 1/2"	2.31 lbs.		

Sizes up to 2" thick and 10" wide available from the mill. Consult us for size increments produced within these limits.

COLD DRAWN INCONEL WIRE IN COILS

Half Hard Temper

Particularly suitable for making hooks used to hang parts in enamelling operations.

SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.045 lbs.
3/16" dia.	.012 lbs.

Other sizes for mill delivery.

Prompt mill shipments can be made of Inconel wire in tempers from soft to spring (as used for high temperature spring applications). Sizes from .002" diameter up. Shapes in wire also can be produced.

INCONEL "X" RODS

Age hardenable alloy evolved from Inconel and appreciably stronger than regular Inconel up to 1800° F. After suitable heat treatment, is an unusually strong alloy both at ordinary temperatures and at red heat. Highly resistant to oxidation, outstandingly low creep rate under stress at 1200° F. to 1500° F. Useful for bolts, springs, structures subject to stress and corrosion such as gas turbine parts, jet engine assemblies, etc.

HOT ROLLED ROUND INCONEL "X" RODS

As Rolled Temper

Centerless ground or lathe turned, depending upon size.

In Random 6- to 18-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot
3/4" dia.	1.64 lbs.
1" dia.	2.91 lbs.
1 1/4" dia.	4.55 lbs.
1 3/4" dia.	8.92 lbs.

Above sizes regularly carried in stock. We can furnish from the mill sizes from 1/2" diameter to 12" diameter, as well as wire sizes. Flat sections developed upon inquiry.

Monel, Nickel and Inconel Rods may be cut to size to suit your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

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Stainless Steel grades of rods and wire have in common a high degree of resistance to corrosion. Variations in alloying ingredients impart changes in machining characteristics, strength and resistance to different corrosives.

Type 303 Stainless Steel rod is most widely used wherever ease of machining is of major importance. Type 304 is more corrosion-resistant than Type 303 with a slight sacrifice in ease of machining. Type 347 is the Stainless alloy generally specified if welding is required. If corrosion resistance is the prime factor in selection, preference is for Type 316.

A comparison of the Stainless Steel types is shown on pages 10 and 11.

Type No. 303 FREE MACHINING STAINLESS STEEL ROUND RODS

(18% Chromium, 8% Nickel)

Annealed and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/16" dia.	.010 lbs.	3/32" dia.	.065 lbs.	1/4" dia.	.167 lbs.	1 1/32" dia.	.316 lbs.
3/32" dia.	.023 lbs.	3/16" dia.	.094 lbs.	5/32" dia.	.211 lbs.	3/8" dia.	.376 lbs.
1/8" dia.	.042 lbs.	7/32" dia.	.128 lbs.	3/8" dia.	.261 lbs.	7/16" dia.	.511 lbs.

Annealed and Centerless Ground

1/2" dia.	.668 lbs.	1 5/8" dia.	4.600 lbs.	2 1/16" dia.	11.359 lbs.	3 1/8" dia.	26.078 lbs.
5/16" dia.	.845 lbs.	1 3/8" dia.	5.049 lbs.	2 1/8" dia.	12.058 lbs.	3 1/4" dia.	28.206 lbs.
3/8" dia.	1.043 lbs.	1 1/2" dia.	5.518 lbs.	2 3/16" dia.	12.778 lbs.	3 3/8" dia.	30.417 lbs.
1 1/16" dia.	1.262 lbs.	1 1/4" dia.	6.008 lbs.	2 1/4" dia.	13.519 lbs.	3 1/2" dia.	32.712 lbs.
3/4" dia.	1.502 lbs.	1 1/8" dia.	6.520 lbs.	2 3/8" dia.	14.280 lbs.	3 3/4" dia.	37.552 lbs.
1 3/16" dia.	1.763 lbs.	1 5/8" dia.	7.051 lbs.	2 3/8" dia.	15.062 lbs.	4" dia.	42.726 lbs.
7/8" dia.	2.044 lbs.	1 11/16" dia.	7.604 lbs.	2 7/8" dia.	15.866 lbs.	4 1/4" dia.	48.233 lbs.
1 1/8" dia.	2.347 lbs.	1 3/4" dia.	8.178 lbs.	2 1/2" dia.	16.690 lbs.	4 1/2" dia.	54.075 lbs.
1" dia.	2.670 lbs.	1 3/8" dia.	8.773 lbs.	2 5/8" dia.	18.400 lbs.	4 3/4" dia.	60.250 lbs.
1 1/16" dia.	3.014 lbs.	1 7/8" dia.	9.388 lbs.	2 3/4" dia.	20.195 lbs.	5" dia.	66.759 lbs.
1 1/8" dia.	3.379 lbs.	1 11/8" dia.	10.024 lbs.	2 7/8" dia.	22.072 lbs.	5 1/2" dia.	80.778 lbs.
1 3/16" dia.	3.766 lbs.	2" dia.	10.681 lbs.	3" dia.	24.033 lbs.	6" dia.	96.133 lbs.
1 1/4" dia.	4.173 lbs.						

SHAPES

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VALVES
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INDEX

Type No. 304 STAINLESS STEEL ROUND RODS

(18% Chromium, 8% Nickel)

Annealed and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.042 lbs.	1/4" dia.	.167 lbs.	3/8" dia.	.376 lbs.	7/16" dia.	.511 lbs.
3/16" dia.	.094 lbs.	5/16" dia.	.261 lbs.				

Annealed and Centerless Ground

1/2" dia.	.668 lbs.	1 1/16" dia.	2.347 lbs.	1 1/2" dia.	6.008 lbs.	2 3/8" dia.	15.062 lbs.
5/16" dia.	.845 lbs.	1" dia.	2.670 lbs.	1 3/8" dia.	7.051 lbs.	2 1/2" dia.	16.690 lbs.
3/8" dia.	1.043 lbs.	1 1/8" dia.	3.379 lbs.	1 1/4" dia.	8.178 lbs.	2 3/4" dia.	20.195 lbs.
1 1/16" dia.	1.262 lbs.	1 1/4" dia.	4.173 lbs.	1 3/8" dia.	9.388 lbs.	3" dia.	24.033 lbs.
3/4" dia.	1.502 lbs.	1 3/8" dia.	5.049 lbs.	2" dia.	10.681 lbs.	3 1/2" dia.	32.712 lbs.
1 1/8" dia.	1.763 lbs.	1 7/8" dia.	5.518 lbs.	2 1/4" dia.	13.519 lbs.	4" dia.	42.726 lbs.
7/8" dia.	2.044 lbs.						

Type No. 316 STAINLESS STEEL ROUND RODS

(18% Chromium, 12% Nickel and Molybdenum)

Annealed and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.042 lbs.	1/4" dia.	.167 lbs.	3/8" dia.	.376 lbs.	7/16" dia.	.511 lbs.
3/16" dia.	.094 lbs.	5/16" dia.	.261 lbs.				

Annealed and Centerless Ground

1/2" dia.	.668 lbs.	1 1/16" dia.	2.347 lbs.	1 1/2" dia.	7.051 lbs.	2 3/8" dia.	20.195 lbs.
5/16" dia.	.845 lbs.	1" dia.	2.670 lbs.	1 3/8" dia.	8.178 lbs.	3" dia.	24.033 lbs.
3/8" dia.	1.043 lbs.	1 1/8" dia.	3.379 lbs.	1 1/4" dia.	9.388 lbs.	3 1/4" dia.	28.206 lbs.
1 1/16" dia.	1.262 lbs.	1 1/4" dia.	4.173 lbs.	2" dia.	10.681 lbs.	3 1/2" dia.	32.712 lbs.
3/4" dia.	1.502 lbs.	1 3/8" dia.	5.049 lbs.	2 1/4" dia.	13.519 lbs.	4" dia.	42.726 lbs.
1 1/8" dia.	1.763 lbs.	1 7/8" dia.	5.518 lbs.	2 3/8" dia.	15.062 lbs.		
7/8" dia.	2.044 lbs.	1 1/2" dia.	6.008 lbs.	2 1/2" dia.	16.690 lbs.		

Type No. 347 STAINLESS STEEL ROUND RODS

(18% Chromium, 10% Nickel and Columbium)

Annealed and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot	SIZE Inches	APPROX. WT. Per Foot
1/8" dia.	.042 lbs.	1/4" dia.	.167 lbs.	3/8" dia.	.376 lbs.	7/16" dia.	.511 lbs.
3/16" dia.	.094 lbs.	5/16" dia.	.261 lbs.				

Annealed and Centerless Ground

1/2" dia.	.668 lbs.	1 1/16" dia.	2.347 lbs.	1 1/2" dia.	7.051 lbs.	2 3/8" dia.	20.195 lbs.
5/16" dia.	.845 lbs.	1" dia.	2.670 lbs.	1 3/8" dia.	8.178 lbs.	3" dia.	24.033 lbs.
3/8" dia.	1.043 lbs.	1 1/8" dia.	3.379 lbs.	1 1/4" dia.	9.388 lbs.	3 1/4" dia.	28.206 lbs.
1 1/16" dia.	1.262 lbs.	1 1/4" dia.	4.173 lbs.	2" dia.	10.681 lbs.	3 1/2" dia.	32.712 lbs.
3/4" dia.	1.502 lbs.	1 3/8" dia.	5.049 lbs.	2 1/4" dia.	13.519 lbs.	4" dia.	42.726 lbs.
1 1/8" dia.	1.763 lbs.	1 7/8" dia.	5.518 lbs.	2 3/8" dia.	15.062 lbs.		
7/8" dia.	2.044 lbs.	1 1/2" dia.	6.008 lbs.	2 1/2" dia.	16.690 lbs.		

Stainless Steel Rods may be cut to size to suit your needs.



ROD AND WIRE • ROUNDS • HEXAGONS • FLATS • SQUARES

Type No. 303 FREE MACHINING STAINLESS STEEL HEXAGON RODS

(18% Chromium, 8% Nickel)

Annealed, Pickled and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
3/16" hex.	.104 lbs.	7/16" hex.	.932 lbs.	1" hex.	2.945 lbs.	1 1/2" hex.	6.625 lbs.
1/4" hex.	.184 lbs.	5/8" hex.	1.150 lbs.	1 1/16" hex.	3.324 lbs.	1 3/8" hex.	7.775 lbs.
5/16" hex.	.287 lbs.	1 1/16" hex.	1.392 lbs.	1 1/8" hex.	3.727 lbs.	1 1/2" hex.	8.380 lbs.
11/32" hex.	.348 lbs.	3/4" hex.	1.656 lbs.	1 1/4" hex.	4.601 lbs.	1 3/4" hex.	9.018 lbs.
3/8" hex.	.414 lbs.	13/16" hex.	1.944 lbs.	1 5/16" hex.	5.072 lbs.	1 7/8" hex.	9.670 lbs.
7/16" hex.	.563 lbs.	7/8" hex.	2.254 lbs.	1 3/8" hex.	5.567 lbs.	1 7/8" hex.	10.350 lbs.
1/2" hex.	.736 lbs.	1 5/16" hex.	2.588 lbs.	1 7/8" hex.	6.085 lbs.	2" hex.	11.780 lbs.

Type No. 316 STAINLESS STEEL HEXAGON RODS

(18% Chromium, 12% Nickel and Molybdenum)

Annealed, Pickled and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
7/16" hex.	.563 lbs.	1 1/16" hex.	1.392 lbs.	1" hex.	2.945 lbs.	1 1/16" hex.	5.072 lbs.
1/2" hex.	.736 lbs.	3/4" hex.	1.656 lbs.	1 1/16" hex.	3.324 lbs.	1 1/2" hex.	6.625 lbs.
5/8" hex.	.932 lbs.	13/16" hex.	1.944 lbs.	1 1/8" hex.	3.727 lbs.	1 5/8" hex.	7.775 lbs.
3/4" hex.	1.150 lbs.	7/8" hex.	2.254 lbs.	1 1/4" hex.	4.601 lbs.		

Type No. 347 STAINLESS STEEL HEXAGON RODS

(18% Chromium, 10% Nickel and Columbium)

Annealed, Pickled and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
7/16" hex.	.563 lbs.	1 1/16" hex.	1.392 lbs.	1" hex.	2.945 lbs.	1 1/16" hex.	5.072 lbs.
1/2" hex.	.736 lbs.	3/4" hex.	1.656 lbs.	1 1/16" hex.	3.324 lbs.	1 1/2" hex.	6.625 lbs.
5/8" hex.	.932 lbs.	13/16" hex.	1.944 lbs.	1 1/8" hex.	3.727 lbs.	1 5/8" hex.	7.775 lbs.
3/4" hex.	1.150 lbs.	7/8" hex.	2.254 lbs.	1 1/4" hex.	4.601 lbs.		

Type No. 303 FREE MACHINING STAINLESS STEEL SQUARE RODS

(18% Chromium, 8% Nickel)

Annealed, Pickled and Cold Drawn

In Random 10- to 12-Foot Lengths

SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot	SIZE Inches (Across Flats)	APPROX. WT. Per Foot
1/8" square	.053 lbs.	3/8" square	.481 lbs.	3/4" square	1.920 lbs.	1 1/4" square	5.310 lbs.
3/16" square	.120 lbs.	1/2" square	.855 lbs.	7/8" square	2.620 lbs.	1 1/2" square	7.650 lbs.
1/4" square	.214 lbs.	5/8" square	1.080 lbs.	1" square	3.420 lbs.	1 3/4" square	10.410 lbs.
5/16" square	.334 lbs.	3/4" square	1.330 lbs.	1 1/8" square	4.300 lbs.	2" square	13.600 lbs.

For a comparison of the properties and qualities of different Stainless Steel alloys, consult chart on pages 10 and 11.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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Type No. 304 STAINLESS STEEL RECTANGULAR BARS

(18% Chromium, 8% Nickel)

Hot Rolled, Annealed and Pickled

In Random Mill Lengths

THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot	THICKNESS & WIDTH Inches	APPROX. WT. Per Foot
1/8" x 3/8"	.159 lbs.	3/16" x 5"	3.188 lbs.	3/8" x 1/2"	.638 lbs.	5/8" x 1"	2.125 lbs.
x 1/2"	.213 lbs.	x 6"	3.826 lbs.	x 3/4"	.956 lbs.	x 1 1/4"	2.656 lbs.
x 5/8"	.266 lbs.			x 1"	1.275 lbs.	x 1 1/2"	3.188 lbs.
x 3/4"	.319 lbs.	1/4" x 1/2"	.425 lbs.	x 1 1/4"	1.594 lbs.	x 2"	4.250 lbs.
x 7/8"	.372 lbs.	x 5/8"	.531 lbs.	x 1 1/2"	1.913 lbs.	x 2 1/2"	5.313 lbs.
x 1"	.425 lbs.	x 3/4"	.636 lbs.	x 1 3/4"	2.232 lbs.	x 3"	6.376 lbs.
x 1 1/4"	.531 lbs.	x 7/8"	.744 lbs.	x 2"	2.550 lbs.	x 4"	8.500 lbs.
x 1 1/2"	.638 lbs.	x 1"	.850 lbs.	x 2 1/2"	3.188 lbs.	x 5"	10.626 lbs.
x 1 3/4"	.744 lbs.	x 1 1/4"	1.063 lbs.	x 3"	3.825 lbs.	x 6"	12.752 lbs.
x 2"	.850 lbs.	x 1 1/2"	1.275 lbs.	x 4"	5.100 lbs.		
x 2 1/2"	1.063 lbs.	x 1 3/4"	1.488 lbs.	x 5"	6.376 lbs.	3/4" x 1"	2.550 lbs.
x 3"	1.275 lbs.	x 2"	1.700 lbs.	x 6"	7.650 lbs.	x 1 1/4"	3.188 lbs.
		x 2 1/2"	2.125 lbs.			x 1 1/2"	3.825 lbs.
3/16" x 1/2"	.319 lbs.	x 3"	2.550 lbs.	1/2" x 5/8"	1.063 lbs.	x 2"	5.100 lbs.
x 5/8"	.399 lbs.	x 4"	3.400 lbs.	x 3/4"	1.275 lbs.	x 2 1/2"	6.375 lbs.
x 3/4"	.478 lbs.	x 5"	4.250 lbs.	x 1"	1.700 lbs.	x 3"	7.650 lbs.
x 7/8"	.558 lbs.	x 6"	5.100 lbs.	x 1 1/4"	2.125 lbs.	x 4"	10.200 lbs.
x 1"	.638 lbs.			x 1 1/2"	2.550 lbs.	x 5"	12.752 lbs.
x 1 1/4"	.797 lbs.	5/16" x 1/2"	.531 lbs.	x 1 3/4"	2.976 lbs.	x 6"	15.300 lbs.
x 1 1/2"	.957 lbs.	x 3/4"	.797 lbs.	x 2"	3.400 lbs.	1" x 1 1/4"	4.250 lbs.
x 1 3/4"	1.116 lbs.	x 1"	1.063 lbs.	x 2 1/2"	4.250 lbs.	x 1 1/2"	5.100 lbs.
x 2"	1.275 lbs.	x 1 1/4"	1.328 lbs.	x 3"	5.100 lbs.	x 2"	6.800 lbs.
x 2 1/4"	1.435 lbs.	x 1 1/2"	1.594 lbs.	x 4"	6.800 lbs.	x 2 1/2"	8.500 lbs.
x 2 1/2"	1.594 lbs.	x 2"	2.125 lbs.	x 5"	8.500 lbs.	x 3"	10.200 lbs.
x 3"	1.913 lbs.	x 2 1/2"	2.657 lbs.	x 6"	10.200 lbs.	x 4"	13.600 lbs.
x 4"	2.550 lbs.	x 3"	3.188 lbs.			x 5"	17.000 lbs.
				5/8" x 3/4"	1.594 lbs.	x 6"	20.400 lbs.

STAINLESS STEEL WIRE

Available from Mill. Consult your nearest Whitehead Office.

SARAN (PLASTIC) ROUND RODS

(Natural Color or Black)

Lengths of Approximately 3 Feet

SIZE Inches	APPROX. FT. Per Pound	SIZE Inches	APPROX. FT. Per Pound	SIZE Inches	APPROX. FT. Per Pound	SIZE Inches	APPROX. FT. Per Pound
*1/16" dia.	435 ft.	*5/16" dia.	17.0 ft.	3/4" dia.	3.00 ft.	1 3/8" dia.	.89 ft.
*1/8" dia.	107 ft.	*3/8" dia.	12.0 ft.	1" dia.	1.50 ft.	1 1/2" dia.	.75 ft.
*3/16" dia.	47 ft.	1/2" dia.	7.0 ft.	1 1/8" dia.	1.30 ft.		
*1/4" dia.	27 ft.	5/8" dia.	4.3 ft.	1 1/4" dia.	1.07 ft.		

*Continuous lengths in Coils.

Stainless Steel Rods may be cut to size to suit your needs.

Shapes *Section*



angles
half ovals
tees
channels
trim
mouldings
extrusions

... for shapes section index, see next page



Call **WHITEHEAD**

First!

See inside covers
for addresses and
phone numbers.

SHAPES

PIPE
TUBE
VALVES
FITTINGS

FASTEN-
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Angles, half ovals	

Detailed index precedes each alloy section.



SHAPES • ANGLES • CHANNELS • EXTRUSIONS • ETC.

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Alcoa Extruded Aluminum Shapes simplify many structural and decorative problems by the use of unusual contour designs, and supplement the conventional angle, channel and beam construction forms. These shapes are extruded through dies each of which is numbered for identification, and use of the die number when ordering a shape of unusual design eliminates a complex series of cross sectional dimensions.

Some of the more common applications for the standard Alcoa extrusions in the truck body field are listed by die number in the table below. These same extrusions are also being used for applications other than truck bodies and a similar interchangeability of uses exists with many extrusions identified in this section for specific applications.

A complete listing of all our standard warehouse extrusions, numerically indexed by die number, appears on the following page.

TRUCK BODY SHAPES

Side Posts	Trim Mouldings	Corner Posts	Rub Rails
771-C	10	23185	7838
892	63	38179	9412
2296	Series 74		11976
4619	650	Drip Mouldings	24531
5899	787	627	
6699	2107	668	
7088			
8604		Slats	Swipe Rails
8606	Roof Bows	7838	793
9003	6699	10758	5211
9412	8606		
11976	9003	Roof Rails	Corner Castings
24531	36871	9006	16B-48
36871	40517	14007	14007
40517			

FOR INDEX BY DIE NUMBER, SEE NEXT PAGE.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

ALUMI-
NUM

PIPE
TUBE
VALVES
FITTINGS

BRASS
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FASTEN-
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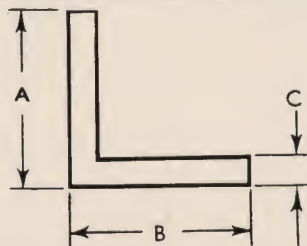
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63	91	771-C	88	5137	79	16505	84
74-A	82	787	91	†5211	89	*16505 (B, RE)	84
74-B	82	†793	88	5390	83	16816	84
74-C	82	853-B	80	5391	83	19047	83
74-D	82	853-F	80	5527	80	19048	83
74-E	82	853-G	80	5899	89	19049	83
74-F	82	853-K	80	5951	80	22266	80
74-H	82	853-N	80	6594	80	†23185	90
74-K	82	892	87	6699	87	23681	84
74-P	82	895	79	6746	79	24531	89
78-K	87	1312	78	†6800	84	26638	83
79-A	78	1445	91	6801	84	36723	85
79-B	78	1843	82	6844	79	36724	85
79-E	78	1940	80	7088	88	36725	85
79-G	78	1943	79	7201	79	†36871	89
79-H	78	1944	79	7385	79	37734	86
79-M	78	2105	80	7484	80	37735	86
79-N	78	2296	87	7613	79	37736	86
79-O	78	2335	80	†7838	88	37737	86
79-P	78	2372	84	8467	84	37738	86
79-Q	78	2388	80	8604	89	37739	86
79-T	78	2715	80	8606	87	38179	90
79-V	78	2748	80	†8974	87	38649	83
79-X	78	2749	80	†8975	87	38651	83
251	91	3331	84	8997	80	39258	85
363	82	3507	80	9003	88	39259	85
472	78	3619	80	9006	90	40517	87
510	82	3776	80	†9412	88	42058	85
627	88	3986	84	10758	88	42061	85
650	82	4286	80	†11976	89		

*These items are castings for use with specific shapes.

†Temporarily non-standard as warehouse items, consult office for availability.

EXTRUDED ALUMINUM—EQUAL ANGLES



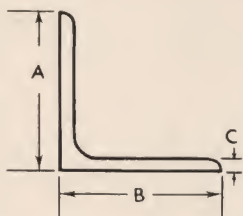
A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LGTHS. Standard	ALLOY & TEMPER	DIE NUMBER
5/8" x	5/8" x	1/8"	.168 lbs.	16'	63ST5	79-O
3/4" x	3/4" x	1/16"	.108 lbs.	16'	63ST5	472
3/4" x	3/4" x	1/8"	.206 lbs.	16'	63ST5	79-A
1" x	1" x	1/16"	.145 lbs.	16'	63ST5	79-M
1" x	1" x	1/8"	.281 lbs.	16'	63ST5	79-G
1" x	1" x	3/16"	.408 lbs.	16'	63ST5	79-B
1 1/4" x	1 1/4" x	1/8"	.356 lbs.	16'	63ST5	79-T
1 1/4" x	1 1/4" x	3/16"	.519 lbs.	16'	63ST5	79-P
1 1/2" x	1 1/2" x	1/8"	.431 lbs.	16'	63ST5	79-V
1 1/2" x	1 1/2" x	3/16"	.633 lbs.	16'	63ST5	79-N
2" x	2" x	1/8"	.581 lbs.	16'	63ST5	79-X
2" x	2" x	3/16"	.857 lbs.	16'	63ST5	79-Q
2" x	2" x	1/4"	1.124 lbs.	16'	63ST5	79-E
1/2" x	1/2" x	1/16"	.070 lbs.	16'	63ST42	1312
1/2" x	1/2" x	1/8"	.131 lbs.	16'	63ST5	79-H

For economy and appearance, and to safeguard against corrosion, "Fasten Aluminum with Aluminum!"



SHAPES • ANGLES • CHANNELS • EXTRUSIONS • ETC.

STRUCTURAL ALUMINUM—EQUAL ANGLES

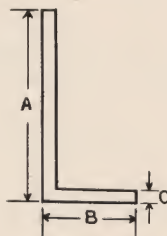


A. Inches	B. Inches	C. Inches	EST. WT. Per Foot	LENGTHS Random	ALLOY & TEMPER
$\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{1}{8}$ "	.21 lbs.	12' to 25'	61ST6
1"	1"	$\frac{1}{8}$ "	.28 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	.41 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	.53 lbs.	12' to 25'	61ST6
1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	$\frac{1}{8}$ "	.36 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	.53 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	.68 lbs.	12' to 25'	61ST6
1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	$\frac{1}{8}$ "	.44 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	.64 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	.83 lbs.	12' to 25'	61ST6

A. Inches	B. Inches	C. Inches	EST. WT. Per Foot	LENGTHS Random	ALLOY & TEMPER
1 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "	$\frac{1}{8}$ "	0.51 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	0.75 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	0.98 lbs.	12' to 25'	61ST6
2"	2"	$\frac{1}{8}$ "	0.57 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	0.87 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	1.14 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	1.65 lbs.	12' to 25'	61ST6
2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	$\frac{3}{16}$ "	1.10 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	1.45 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	1.78 lbs.	12' to 25'	61ST6
3"	3"	$\frac{3}{16}$ "	1.33 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	1.73 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	2.14 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	2.55 lbs.	12' to 25'	61ST6
3 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	$\frac{3}{16}$ "	2.53 lbs.	12' to 25'	61ST6
4"	4"	$\frac{1}{4}$ "	2.35 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	2.91 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	3.46 lbs.	12' to 25'	61ST6

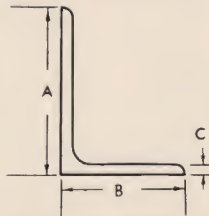
EXTRUDED ALUMINUM—UNEQUAL ANGLES

A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LGTHS. Standard	ALLOY & TEMPER	DIE NUMBER
$\frac{3}{4}$ "	$\frac{3}{8}$ "	$\frac{3}{32}$ "	.116 lbs.	16'	63ST42	1944
1"	$\frac{1}{2}$ "	$\frac{3}{32}$ "	.158 lbs.	16'	63ST42	1943
1"	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.206 lbs.	16'	63ST5	7201
1"	$\frac{3}{4}$ "	$\frac{1}{8}$ "	.244 lbs.	16'	63ST5	7385
1 $\frac{1}{4}$ "	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.244 lbs.	16'	63ST5	895
1 $\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{8}$ "	.319 lbs.	16'	63ST5	5137
1 $\frac{1}{2}$ "	1"	$\frac{1}{8}$ "	.356 lbs.	16'	63ST5	7613
2"	1"	$\frac{1}{8}$ "	.431 lbs.	16'	63ST5	6844
3 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	$\frac{1}{8}$ "	.694 lbs.	16'	63ST5	6746



STRUCTURAL ALUMINUM—UNEQUAL ANGLES

A. Inches	B. Inches	C. Inches	EST. WT. Per Foot	LENGTHS Random	ALLOY & TEMPER
1 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	$\frac{1}{8}$ "	0.40 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	0.58 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	0.76 lbs.	12' to 25'	61ST6
1 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "	$\frac{1}{8}$ "	0.44 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	0.64 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	0.83 lbs.	12' to 25'	61ST6
2"	1 $\frac{1}{2}$ "	$\frac{1}{8}$ "	0.51 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	0.75 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	0.98 lbs.	12' to 25'	61ST6
2 $\frac{1}{2}$ "	2"	$\frac{3}{16}$ "	0.99 lbs.	12' to 25'	61ST6
		$\frac{1}{4}$ "	1.29 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	1.59 lbs.	12' to 25'	61ST6
3"	2"	$\frac{1}{8}$ "	1.10 lbs.	12' to 25'	61ST6
		$\frac{3}{16}$ "	1.44 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	2.11 lbs.	12' to 25'	61ST6



A. Inches	B. Inches	C. Inches	EST. WT. Per Foot	LENGTHS Random	ALLOY & TEMPER
3"	2 $\frac{1}{2}$ "	$\frac{1}{4}$ "	1.58 lbs.	12' to 25'	61ST6
3 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	$\frac{1}{4}$ "	1.73 lbs.	12' to 25'	61ST6
4"	3"	$\frac{1}{4}$ "	2.05 lbs.	12' to 25'	61ST6
		$\frac{3}{8}$ "	3.01 lbs.	12' to 25'	61ST6

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

PIPE
TUBE
VALVES
FITTINGS

BRASS
BRONZE

FASTEN-
ERS

WELDING
AND
BRAZING

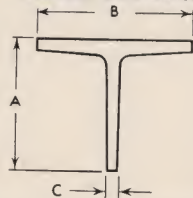
SPECIAL
PROD-
UCTS

MONEL
INCONEL
STAIN-
LESS

DATA

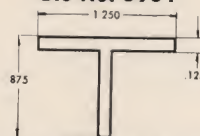
EXTRUDED ALUMINUM—TEES

Die No. 853 Series



A. Inches	B. Inches	C. Inches	EST. WT. Per Foot	LENGTHS Standard	ALLOY & TEMPER	DIE NUMBER
1"	1"	$\frac{1}{8}$ "	.320 lbs.	22'	61ST6	853-F
1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	$\frac{1}{8}$ "	.450 lbs.	22'	61ST6	853-B
1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.628 lbs.	22'	61ST6	853-N
1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	$\frac{1}{4}$ "	.890 lbs.	22'	61ST6	853-G
1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.700 lbs.	22'	61ST6	853-K

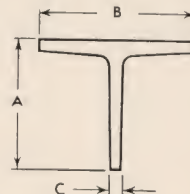
Die No. 5951



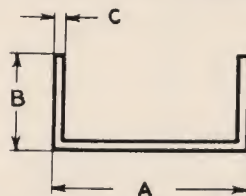
Estimated Weight per Ft. .300 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

STRUCTURAL ALUMINUM—TEES

A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LENGTHS Random	ALLOY & TEMPER
1 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	$\frac{1}{4}$ "	.81 lbs.	12' to 25'	61ST6
2"	2"	$\frac{1}{4}$ "	1.29 lbs.	12' to 25'	61ST6



EXTRUDED ALUMINUM—CHANNELS



A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LGTHS. Standard	ALLOY & TEMPER	DIE NUMBER
$\frac{3}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{8}$ "	.187 lbs.	16'	63ST5	2715
1"	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.263 lbs.	20'	63ST5	1940
1"	1"	$\frac{1}{8}$ "	.413 lbs.	16'	63ST5	7484
1 $\frac{1}{4}$ "	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.300 lbs.	20'	63ST5	4286
1.438	$\frac{1}{2}$ "	$\frac{3}{32}$ "	.251 lbs.	20'	63ST5	3507
1 $\frac{1}{2}$ "	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.337 lbs.	20'	63ST5	4300
1 $\frac{3}{4}$ "	$\frac{3}{4}$ "	$\frac{1}{8}$ "	.450 lbs.	16'	63ST5	2105
2"	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.413 lbs.	16'	63ST5	2388
2"	1"	$\frac{1}{8}$ "	.564 lbs.	20'	63ST5	5527
2.1	.55	.100	.360 lbs.	20'	63ST5	22266
2 $\frac{1}{4}$ "	$\frac{7}{8}$ "	$\frac{1}{8}$ "	.563 lbs.	16'	63ST5	2748
3"	$\frac{1}{2}$ "	$\frac{1}{8}$ "	.563 lbs.	16'	63ST5	6594
3"	1"	$\frac{1}{8}$ "	.713 lbs.	16'	63ST5	3776

*Rounded inside edges.

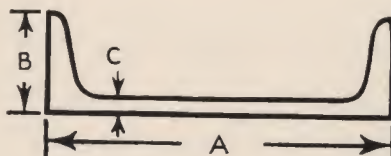
For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.



SHAPES • ANGLES • CHANNELS • EXTRUSIONS • ETC.

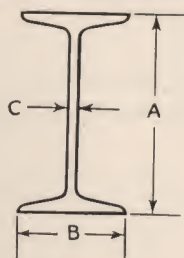
STRUCTURAL ALUMINUM—CHANNELS

BASE FLANGE WEB			EST. WT. Per Ft.	LENGTHS Random	ALLOY & TEMPER
A. Inches	B. Inches	C. Inches			
3" x 1.410 x .170			1.46 lbs.	12' to 25'	61ST6
3" x 1.498 x .258			1.78 lbs.	12' to 25'	61ST6
3" x 1.596 x .356			2.13 lbs.	12' to 25'	61ST6
4" x 1.580 x .180			1.90 lbs.	12' to 25'	61ST6
4" x 1.647 x .247			2.22 lbs.	12' to 25'	61ST6
4" x 1.720 x .320			2.58 lbs.	12' to 25'	61ST6
5" x 1.750 x .190			2.38 lbs.	12' to 25'	61ST6
5" x 1.885 x .325			3.20 lbs.	12' to 25'	61ST6
6" x 1.945 x .225			3.09 lbs.	12' to 25'	61ST6
6" x 2.034 x .314			3.73 lbs.	12' to 25'	61ST6
6" x 2.157 x .437			4.63 lbs.	12' to 25'	61ST6



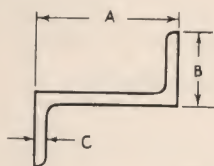
ALUMI-
NUM

STRUCTURAL ALUMINUM—I BEAMS



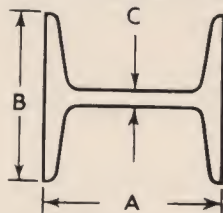
BASE FLANGE WEB			EST. WT. Per Ft.	LENGTHS Random	ALLOY & TEMPER
A. Inches	B. Inches	C. Inches			
3" x 2.330 x .170			2.02 lbs.	12' to 25'	61ST6
3" x 2.590 x .349			2.67 lbs.	12' to 25'	61ST6
4" x 2.660 x .190			2.72 lbs.	12' to 25'	61ST6
4" x 2.796 x .326			3.38 lbs.	12' to 25'	61ST6
5" x 3.000 x .210			3.53 lbs.	12' to 25'	61ST6
5" x 3.284 x .494			5.25 lbs.	12' to 25'	61ST6
6" x 3.330 x .230			4.43 lbs.	12' to 25'	61ST6
6" x 3.443 x .343			5.25 lbs.	12' to 25'	61ST6

STRUCTURAL ALUMINUM—ZEES



A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LENGTHS Random	ALLOY & TEMPER
3" x 2 1/16" x 1/4"			2.40 lbs.	12' to 25'	61ST6

STRUCTURAL ALUMINUM—H BEAMS



A. Inches	B. Inches	C. Inches	EST. WT. Per Ft.	LENGTHS Random	ALLOY & TEMPER
4" x 4" x .313			4.85 lbs.	12' to 25'	61ST6

Riveting is the most commonly used method for joining aluminum, particularly the structural alloys which depend upon heat treatment for their high mechanical properties.

For information on riveting aluminum, strength and proportions of riveted joints, driving methods, and alloy selection, write for 56-page booklet, "Riveting Alcoa Aluminum."

For economy and appearance, and to safeguard against corrosion, "Fasten Aluminum with Aluminum!"

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

PIPE
TUBE
VALVES
FITTINGS

BRASS
BRONZE

FASTEN
ERS

WELDING
AND
BRAZING

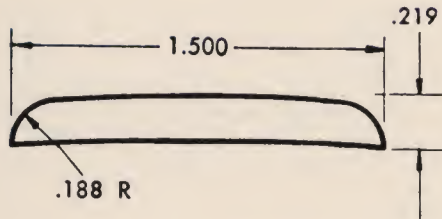
SPECIAL
PROG-
RAYS

MONEL
INCONEL
STAIN-
LESS

DATA

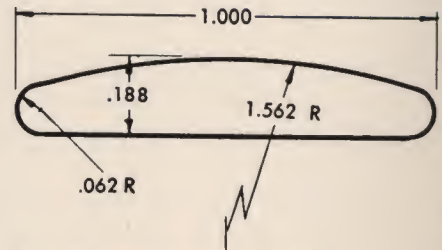
ALUMINUM TRIM MOULDING—HALF OVAL

Die No. 363



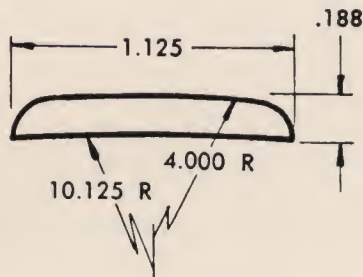
Estimated Weight per Ft.—.356 lbs.
Length—16 Ft.
Alloy and Temper—63ST42

Die No. 650



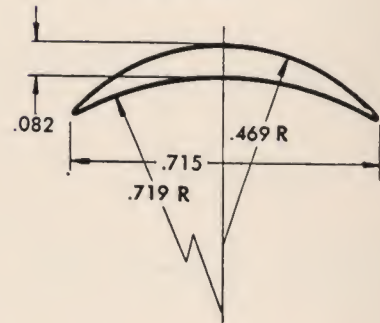
Estimated Weight per Ft.—.191 lbs.
Length—16 Ft.
Alloy and Temper—63ST42

Die No. 510



Estimated Weight per Ft.—.212 lbs.
Length—16 Ft.
Alloy and Temper—63ST42

Die No. 1843



Estimated Weight per Ft.—.058 lbs.
Length—16 Ft.
Alloy and Temper—63ST42

TRIM MOULDING—HALF OVAL



A. Inches	B. Inches	C. Inches	R1 Inches	R2 Inches	EST. WT. Per Foot	LENGTHS Standard	ALLOY & TEMPER	DIE NUMBER
1/2" x 3/16" x .019			.500	.188	.086 lbs.	16'	63ST42	74-C
5/8" x 3/16" x .019			.625	.188	.107 lbs.	16'	63ST42	74-A
3/4" x 3/16" x .020			.750	.188	.128 lbs.	16'	63ST42	74-B
3/4" x 1/4" x .025			.750	.250	.170 lbs.	16'	63ST42	74-K
7/8" x 3/16" x .019			.875	.188	.137 lbs.	16'	63ST42	74-H
7/8" x 1/4" x .025			.875	.250	.192 lbs.	16'	63ST42	74-E
1" x 1/4" x .025			1.250	.203	.228 lbs.	16'	63ST42	74-D
1 1/4" x 1/4" x .025			1.250	.250	.257 lbs.	16'	63ST42	74-F
2" x 1/4" x .025			4.000	.250	.418 lbs.	16'	63ST42	74-P

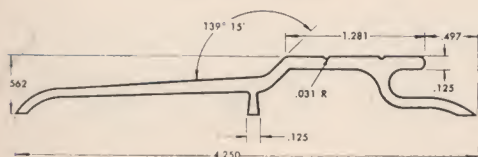
Fancy Pattern Aluminum Sheets available from stock. See **SHEET SECTION**.



SHAPES • ANGLES • CHANNELS • EXTRUSIONS • ETC.

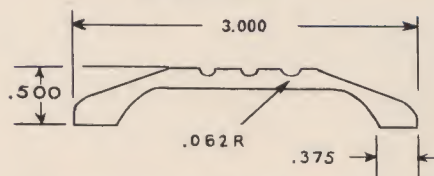
ALUMINUM THRESHOLDS & DOOR SADDLES

Die No. 38649



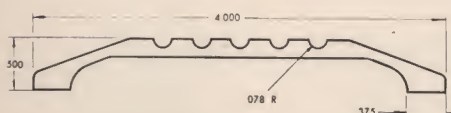
Estimated Weight per Ft.—.773 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 38651



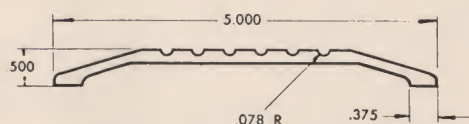
Estimated Weight per Ft.—.721 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 19047



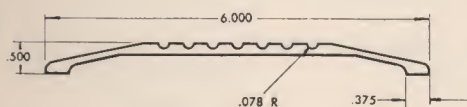
Estimated Weight per Ft.—.829 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 19048



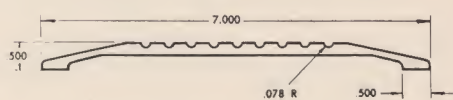
Estimated Weight per Ft.—1.102 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 19049



Estimated Weight per Ft.—1.226 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

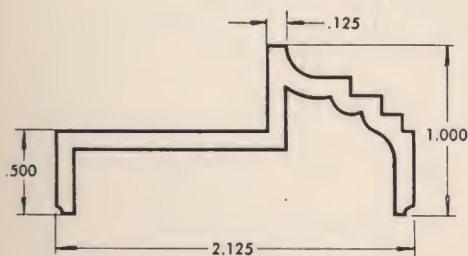
Die No. 26638



Estimated Weight per Ft.—1.777 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

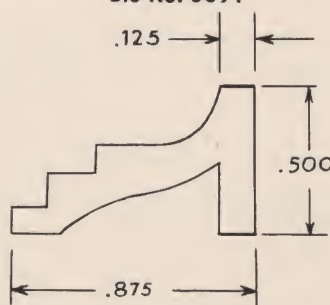
ALUMINUM DOOR TRIM

Die No. 5390



Estimated Weight per Ft.—.528 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 5391



Estimated Weight per Ft.—.209 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Aluminum Wood Screws and other fasteners listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

PIPE
TUBE
VALVES
FITTINGS

BRASS
BRONZE

FASTEN-
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

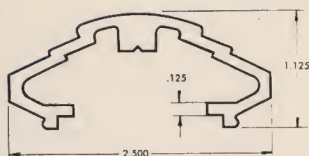
MONEL
INCONEL
STAIN-
LESS

DATA

INDEX

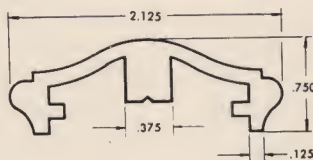
ALUMINUM HANDRAILS AND FITTINGS

Die No. 3986



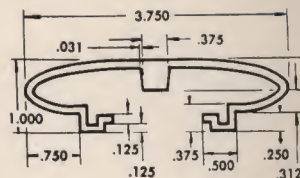
Estimated Weight per Ft.—.816 lbs.
Alloy and Temper—63ST5
Length—20 Ft.

Die No. 23681



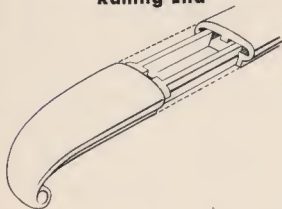
Estimated Weight per Ft.—.690 lbs.
Alloy and Temper—63ST5
Length—20 Ft.

Die No. 16816



Estimated Weight per Ft.—1.480 lbs.
Alloy and Temper—63ST5
Length—20 Ft.

Die No. 16505RE
Railing End



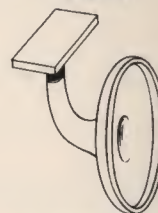
Estimated Weight per Pc.—2.5 lbs.
Cast Aluminum (unfinished)
Application—End piece for handrail
Die No. 16505

Die No. 16505



Estimated Weight per Ft.—.852 lbs.
Alloy and Temper—63ST5
Length—20 Ft.

Die No. 16505B
Bracket

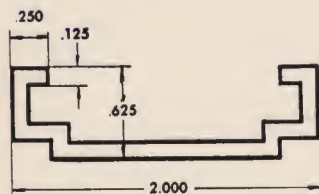


Estimated Weight per Pc.—.563 lbs.
Cast Aluminum (unfinished)
Application—Bracket for handrail
Die No. 16505

FOR ALUMINUM UTILITY HANDRAIL PIPE AND FITTINGS, SEE PIPE & TUBE SECTION.

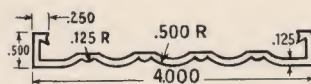
ALUMINUM PILASTERS AND COLUMNS

Die No. 6801



Estimated Weight per Ft.—.488 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

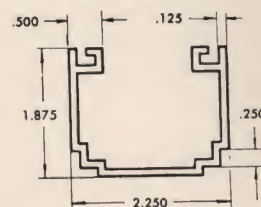
Die No. 8467



Estimated Weight per Ft.—.806 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

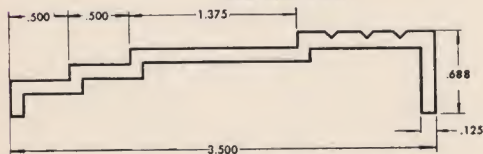
Die No. 6800†

†See page 78 Index



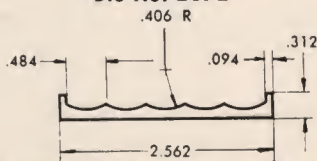
Estimated Weight per Ft.—1.087 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 3331



Estimated Weight per Ft.—.709 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 2372



Estimated Weight per Ft.—.473 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

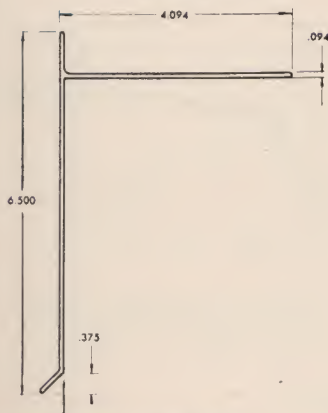
For economy and appearance, and to safeguard against corrosion, "Fasten Aluminum with Aluminum!"



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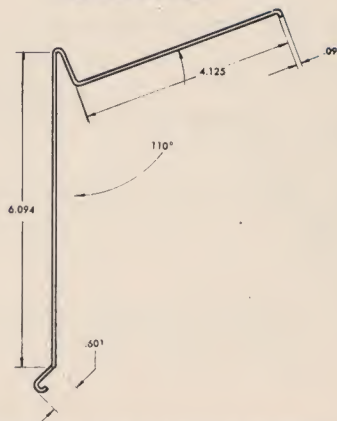
ALUMINUM COPINGS AND GRAVEL STOPS

Die No. 39259



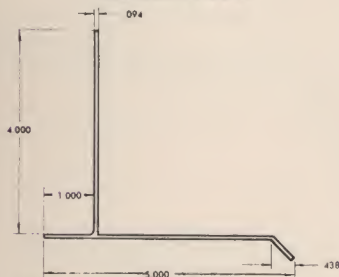
Application—Gravel Stop
Estimated Weight per Ft.—1.201 lbs.
Alloy and Temper—63ST42
Length—10 Ft.

Die No. 39258



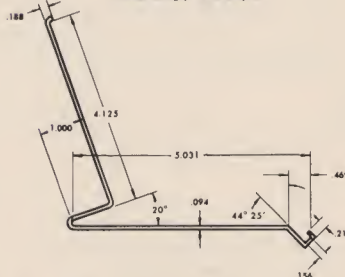
Application—Joint Cover Plate for 39259
Estimated Weight per Ft.—1.340 lbs.
Alloy and Temper—63ST42
Length—6 In.

Die No. 42058



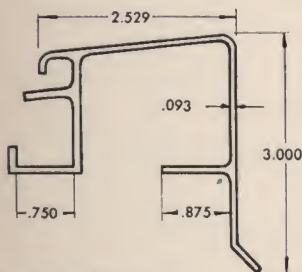
Application—Gravel Stop
Estimated Weight per Ft.—1.027 lbs.
Alloy and Temper—63ST42
Length—10 Ft.

Die No. 42061



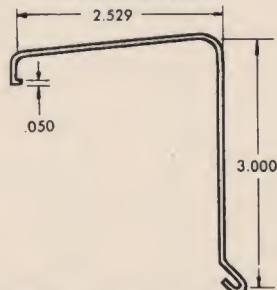
Application—Joint Cover Plate for 42058
Estimated Weight per Ft.—1.229 lbs.
Alloy and Temper—63ST42
Length—6 In.

Die No. 36723



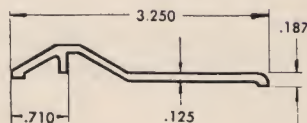
Application—Fascia
Estimated Weight per Ft.—1.092 lbs.
Alloy and Temper—63ST42
Length—10 Ft.

Die No. 36724



Application—Fascia Joint Cover Plate
Estimated Weight per Ft.—.371 lbs.
Alloy and Temper—63ST42
Length—6 In.

Die No. 36725



Application—Anchor Plate
Estimated Weight per Ft.—.569 lbs.
Alloy and Temper—63ST42
Length—6 In.

For specifications and installation instructions write for booklet, "Copings & Gravel Stops of Alcoa Aluminum."

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AND
BRAZING

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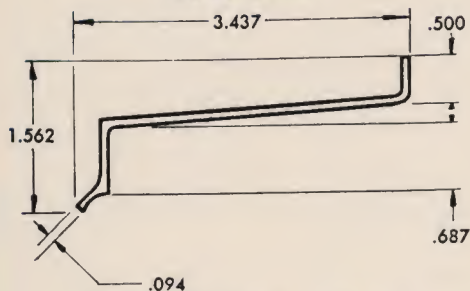
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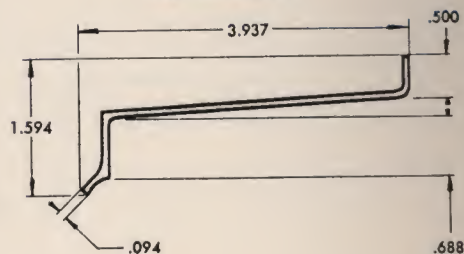
ALUMINUM WINDOW SILLS—TYPE "C"

Die No. 37734



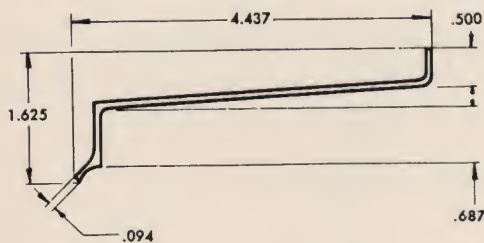
Estimated Weight per Ft.—.524 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

Die No. 37735



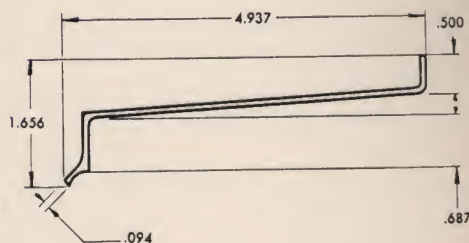
Estimated Weight per Ft.—.574 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

Die No. 37736



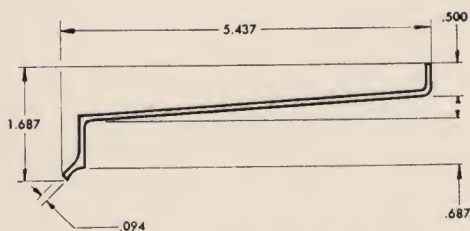
Estimated Weight per Ft.—.636 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

Die No. 37737



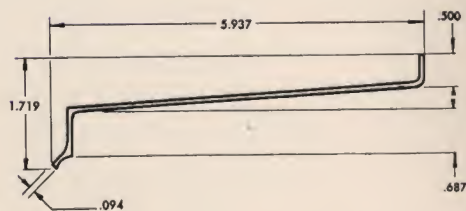
Estimated Weight per Ft.—.692 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

Die No. 37738



Estimated Weight per Ft.—.746 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

Die No. 37739



Estimated Weight per Ft.—.804 lbs.
Alloy and Temper—63ST42
Length—21 Ft.

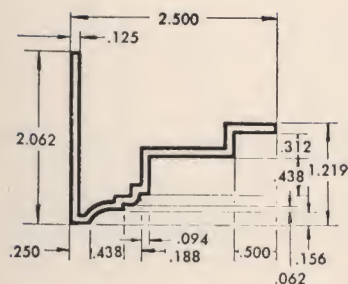
For specifications and installation instructions write for booklet, "Alcoa Aluminum for Window Sills and Thresholds."



ALUMINUM CORNICES

Die No. 8974†

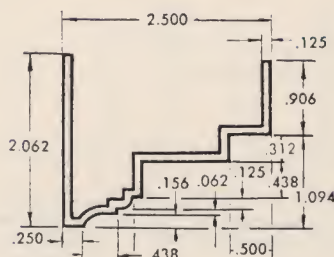
†See page 78 Index



Estimated Weight per Ft.—.812 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

Die No. 8975†

†See page 78 Index



Estimated Weight per Ft.—.930 lbs.
Alloy and Temper—63ST5
Length—16 Ft.

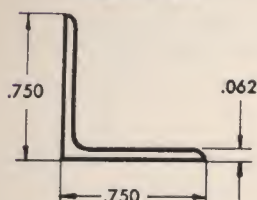
TRUCK BODY SHAPES

During the past twenty years the aluminum truck body has received wide acceptance. While aluminum's chief advantage is light weight, other factors such as durability, lower maintenance, resistance to corrosion, workability and non-toxicity contribute to the widespread use of this versatile material for body construction.

A very useful booklet is available to truck body builders and maintenance men which describes methods of fabrication, design and performance records of truck bodies using Alcoa aluminum. Write for "Alcoa Aluminum for Truck Bodies."

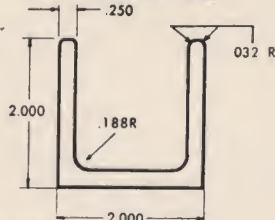
EXTRUDED ALUMINUM—TRUCK BODY SHAPES

Die No. 78K



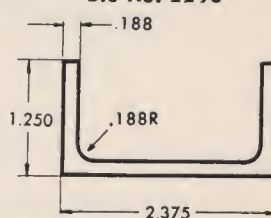
Application—General
Estimated Weight per Ft.—.106 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 892



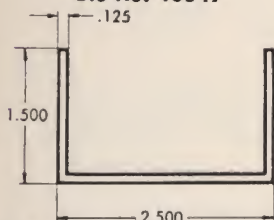
Application—Side Post
Estimated Weight per Ft.—1.667 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 2296



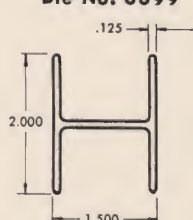
Application—Side Post
Estimated Weight per Ft.—1.031 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 40517



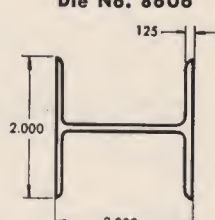
Application—Side Post or Roof Bow
Estimated Weight per Ft.—.787 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 6699



Application—Side Post or Roof Bow
Estimated Weight per Ft.—.788 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 8606



Application—Side Post or Roof Bow
Estimated Weight per Ft.—.797 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

For Alcoa Aluminum Sheets for use with above shapes, see **SHEET SECTION.**

ALUMI-
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PIPE
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FITTINGS

BRASS
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AND
BRAZING

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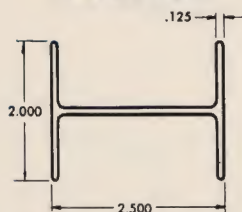
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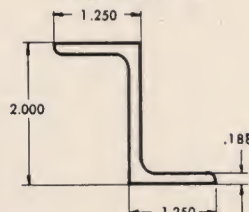
EXTRUDED ALUMINUM—TRUCK BODY SHAPES—Continued

Die No. 9003



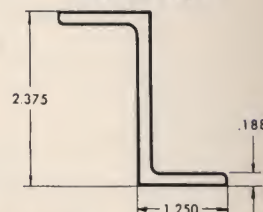
Application—Side Post or Roof Bow
Estimated Weight per Ft.—.946 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 771C



Application—Side Post
Estimated Weight per Ft.—.938 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

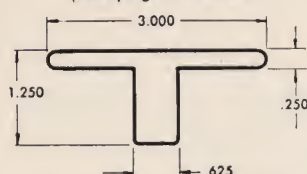
Die No. 7088



Application—Side Post
Estimated Weight per Ft.—1.022 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

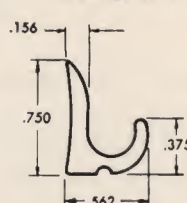
Die No. 793†

†See page 78 Index



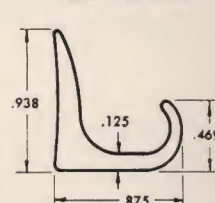
Application—Swipe Rail
Estimated Weight per Ft.—.369 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 627



Application—Drip Moulding
Estimated Weight per Ft.—.184 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 668



Application—Drip Moulding
Estimated Weight per Ft.—.307 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

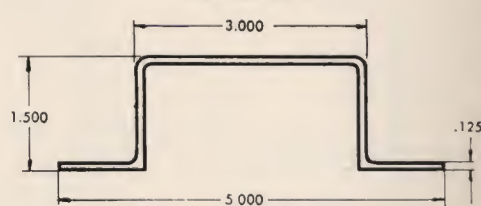
Die No. 9412†

†See page 78 Index



Application—Side Post
Estimated Weight per Ft.—.943 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

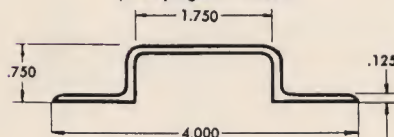
Die No. 4619



Application—Side Post
Estimated Weight per Ft.—1.157 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

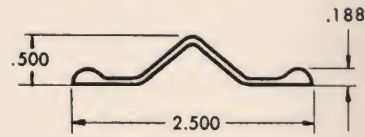
Die No. 7838†

†See page 78 Index



Application—Rub Rail or Slat
Estimated Weight per Ft.—.787 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 10758



Application—Slat
Estimated Weight per Ft.—.369 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

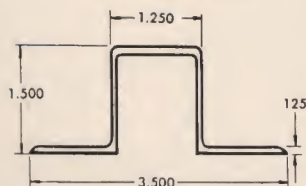


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EXTRUDED ALUMINUM—TRUCK BODY SHAPES—Continued

Die No. 36871†

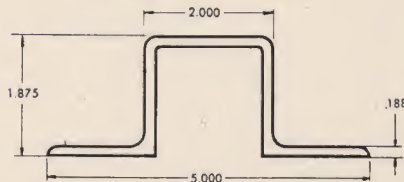
†See page 78 Index



Application—Side Post or Roof Bow
Estimated Weight per Ft.—.791 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 5899†

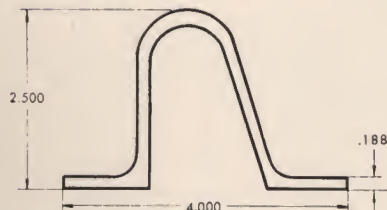
†See page 78 Index



Application—Side Post
Estimated Weight per Ft.—1.884 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

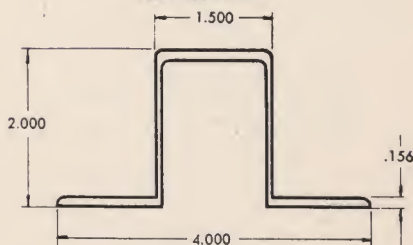
Die No. 5211†

†See page 78 Index



Application—Swipe Rail
Estimated Weight per Ft.—1.795 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

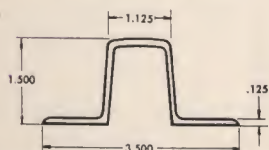
Die No. 8604



Application—Side Post
Estimated Weight per Ft.—1.163 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

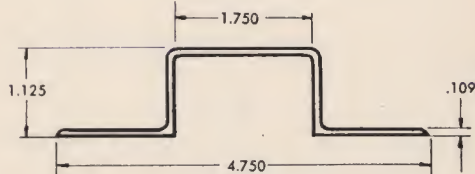
Die No. 11976†

†See page 78 Index



Application—Rub Rail or Side Post
Estimated Weight per Ft.—.762 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 24531



Application—Rub Rail or Side Post
Estimated Weight per Ft.—.898 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

"Payload Proof," a 36-page booklet which explains where and how Aluminum is used to give the best in trailer construction, is available free on request. It explains structural features, profit ideas, weights, dimensions and performance records in terms of particular interest to body builders and fleet operators.

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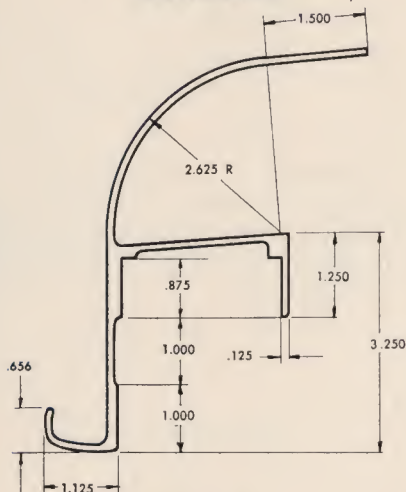
WELDING
AND
BRAZING

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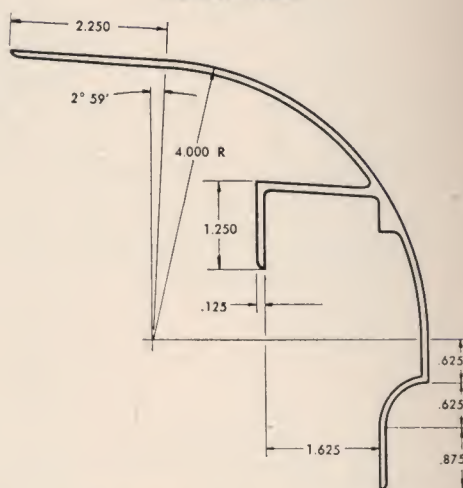
EXTRUDED ALUMINUM—TRUCK BODY SHAPES—Continued

Die No. 9006



Application—Roof Rail
Estimated Weight per Ft.—2.378 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

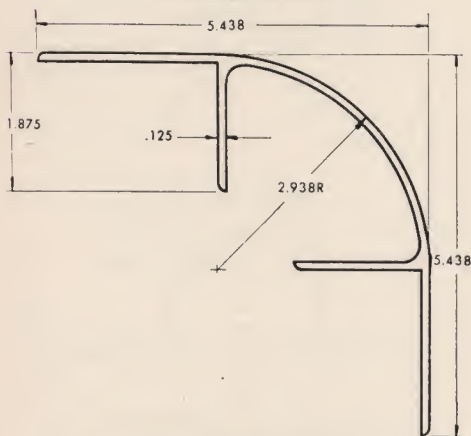
Die No. 14007



Application—Roof Rail
Estimated Weight per Ft.—2.149 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

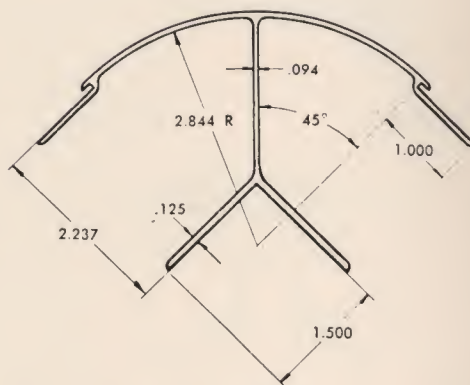
Die No. 23185†

†See page 78 Index



Application—Corner Post
Estimated Weight per Ft.—1.968 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Die No. 38179



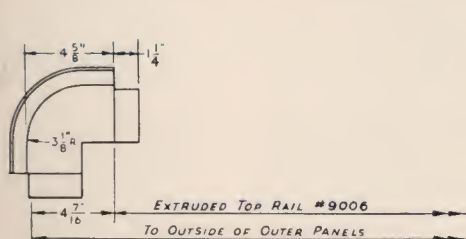
Application—Corner Post
Estimated Weight per Ft.—1.489 lbs.
Alloy and Temper—61ST6
Length—22 Ft.

Seal the joints between sheet and structural members with a leak-proof plastic sealing compound.
See "Alumilastic," in SPECIAL PRODUCTS SECTION.

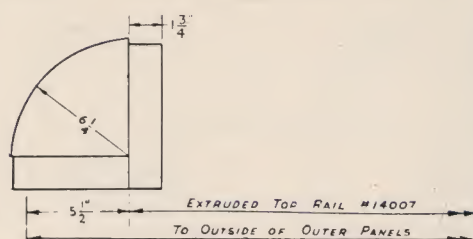


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356T6 ALUMINUM TRUCK BODY CORNER CASTINGS



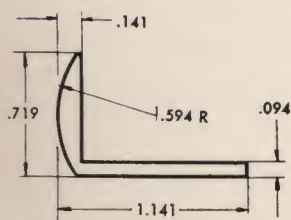
No. 16B-48 Smooth Ball Corner
For use with Die No. 9006
Weight 2.16 lbs. per pc.



No. 14007
For use with Die No. 14007
Weight 1.95 lbs. per pc.

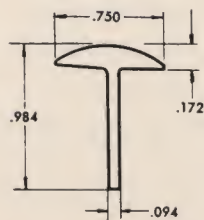
MISCELLANEOUS ALUMINUM SHAPES

Die No. 10



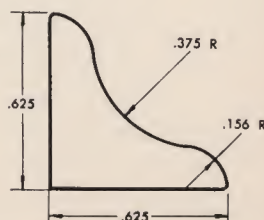
Application—Moulding
Estimated Weight per Ft.—.203 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 63



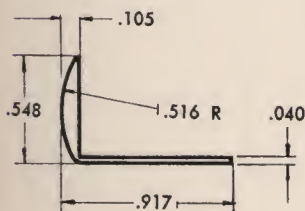
Application—Door Closure
Estimated Weight per Ft.—.188 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 251



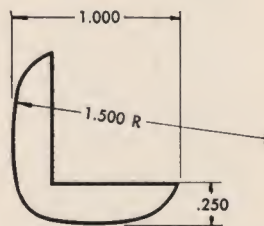
Application—Cove Moulding
Estimated Weight per Ft.—.228 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 1445



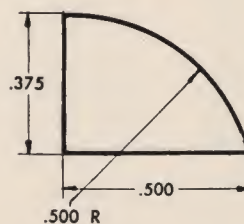
Application—Moulding
Estimated Weight per Ft.—.093 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 787



Application—Corner Angle
Estimated Weight per Ft.—.433 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Die No. 661



Application—Cove Moulding
Estimated Weight per Ft.—.168 lbs.
Alloy and Temper—63ST42
Length—16 Ft.

Trailers and truck bodies of Alcoa Aluminum cost less to maintain.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI
NUM

PIPE
TUBE
VALVES
FITTINGS

BRASS
BRONZE

FASTEN-
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

MONEL
INCONEL
STAIN-
LESS

DATA

NOTES



INDEX—BRASS • BRONZE • NICKEL SILVER SHAPES

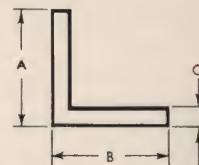
BRASS	Page No.	BRONZE	Page No.
Angles.....	92	Angles.....	93
Channels.....	93	Channels.....	94
Half Rounds & Half Ovals.....	94	Door Saddles.....	94

NICKEL SILVER	Page No.
Channels.....	93

Anaconda Architectural Shapes, in combination with sheets, rods, tubes and castings, may be used economically in the construction of all types of architectural metal work. The color of extruded bronze is closely matched by Muntz Metal sheets and Red Brass tubes. The metal can be artificially colored by the fabricator to obtain any effect desired, such as Statuary Bronze, Verdi Antique, Flemish Brass or other oxidized finishes. Special drawn and extruded odd shapes not listed in this section available on request.

HALF HARD BRASS ANGLES

In Random 12- to 16-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
1/4" x 1/4"		.045 (17 B&S)	.08 lbs.	1" x 1"		.062 (1/16")	.44 lbs.
3/8" x 3/8"		.045 (17 B&S)	.12 lbs.	1" x 1"		.125 (1/8")	.86 lbs.
3/8" x 3/8"		.093 (3/32")	.22 lbs.	1" x 1"		.187 (3/16")	1.24 lbs.
3/8" x 7/8"		.040 (18 B&S)	.18 lbs.	1" x 1 1/4"		.125 (1/8")	.97 lbs.
1/2" x 1/2"		.062 (1/16")	.22 lbs.	1" x 1 1/2"		.125 (1/8")	1.10 lbs.
1/2" x 1/2"		.081 (12 B&S)	.27 lbs.	1" x 2"		.125 (1/8")	1.33 lbs.
1/2" x 1/2"		.093 (3/32")	.31 lbs.	1 1/4" x 1 1/4"		.125 (1/8")	1.09 lbs.
1/2" x 1/2"		.125 (1/8")	.42 lbs.	1 1/4" x 1 1/4"		.250 (1/4")	2.05 lbs.
1/2" x 3/4"		.125 (1/8")	.52 lbs.	1 1/2" x 1 1/2"		.062 (1/16")	.69 lbs.
1/2" x 1"		.125 (1/8")	.65 lbs.	1 1/2" x 1 1/2"		.125 (1/8")	1.31 lbs.
1/2" x 1 1/2"		.125 (1/8")	.84 lbs.	1 1/2" x 1 1/2"		.187 (3/16")	1.92 lbs.
5/8" x 5/8"		.062 (1/16")	.27 lbs.	1 1/2" x 1 1/2"		.250 (1/4")	2.52 lbs.
5/8" x 5/8"		.093 (3/32")	.36 lbs.	2" x 2"		.125 (1/8")	1.79 lbs.
3/4" x 3/4"		.062 (1/16")	.33 lbs.	2" x 2"		.187 (3/16")	2.61 lbs.
3/4" x 3/4"		.093 (3/32")	.48 lbs.	2" x 2"		.250 (1/4")	3.42 lbs.
3/4" x 3/4"		.125 (1/8")	.64 lbs.	2 1/2" x 2 1/2"		.187 (3/16")	3.29 lbs.
3/4" x 1"		.125 (1/8")	.75 lbs.	2 1/2" x 2 1/2"		.250 (1/4")	4.33 lbs.
3/4" x 1 1/2"		.125 (1/8")	.97 lbs.	3" x 3"		.250 (1/4")	5.25 lbs.

Write for booklet, "Anaconda Architectural Extruded Shapes."

ARCHITECTURAL EXTRUDED BRONZE ANGLES

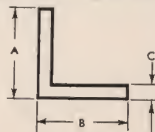
In Random 12- to 16-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
3/8" x 3/8"		3/32"	.22 lbs.	3/4" x 1"		1/8"	.75 lbs.	1 1/2" x 1 1/2"		1/8"	1.31 lbs.
1/2" x 1/2"		3/32"	.31 lbs.	3/4" x 1 1/2"		1/8"	.97 lbs.	1 1/2" x 1 1/2"		3/16"	1.92 lbs.
1/2" x 1/2"		1/8"	.42 lbs.					1 1/2" x 1 1/2"		1/4"	2.52 lbs.
1/2" x 3/4"		1/8"	.52 lbs.	1" x 1"		1/8"	.86 lbs.				
1/2" x 1"		1/8"	.65 lbs.	1" x 1"		3/16"	1.24 lbs.	2" x 2"		1/8"	1.79 lbs.
1/2" x 1"		1/8"	.65 lbs.	1" x 1 1/4"		1/8"	.97 lbs.	2" x 2"		3/16"	2.61 lbs.
1/2" x 1 1/2"		1/8"	.84 lbs.	1" x 1 1/2"		1/8"	1.10 lbs.	2" x 2"		1/4"	3.42 lbs.
5/8" x 5/8"		3/32"	.36 lbs.	1" x 2"		1/8"	1.33 lbs.	2 1/2" x 2 1/2"		3/16"	3.29 lbs.
3/4" x 3/4"		3/32"	.48 lbs.	1 1/4" x 1 1/4"		1/8"	1.09 lbs.	2 1/2" x 2 1/2"		1/4"	4.33 lbs.
3/4" x 3/4"		1/8"	.64 lbs.	1 1/4" x 1 1/4"		1/4"	2.05 lbs.	3" x 3"		1/4"	5.25 lbs.

HARD DRAWN COMMERCIAL BRONZE ANGLES

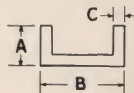
In Random 12- to 15-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
1/2" x 1/2"		.081 (12 B&S)	.29 lbs.	1 1/4" x 1 1/4"		.128 (8 B&S)	1.15 lbs.
5/8" x 5/8"		.091 (11 B&S)	.40 lbs.	1 1/2" x 1 1/2"		.128 (8 B&S)	1.38 lbs.
3/4" x 3/4"		.102 (10 B&S)	.54 lbs.	2" x 2"		.128 (8 B&S)	1.87 lbs.
1" x 1"		.128 (8 B&S)	.90 lbs.				

HALF HARD BRASS CHANNELS

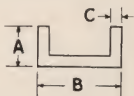
In Random 12- to 16-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
¼" x ¼"		.040 (18 B&S)	.10 lbs.	½" x 1"		.081 (12 B&S)	.54 lbs.
⅜" x ⅜"		.040 (18 B&S)	.15 lbs.	½" x 1"		.125 (⅛")	.81 lbs.
⅜" x ⅜"		.064 (14 B&S)	.24 lbs.	½" x 1¼"		.081 (12 B&S)	.67 lbs.
⅜" x ⅜"		.093 (⅜")	.33 lbs.	½" x 1¼"		.125 (⅛")	.91 lbs.
⅜" x ½"		.081 (12 B&S)	.33 lbs.	½" x 1½"		.081 (12 B&S)	.69 lbs.
⅜" x ½"		.093 (⅜")	.36 lbs.	½" x 1½"		.125 (⅛")	1.02 lbs.
⅜" x ½"		.125 (⅛")	.46 lbs.	¾" x ¾"		.064 (14 B&S)	.50 lbs.
⅜" x ⅝"		.081 (12 B&S)	.36 lbs.	¾" x ¾"		.093 (⅜")	.70 lbs.
⅜" x ¾"		.040 (18 B&S)	.21 lbs.	¾" x ¾"		.125 (⅛")	.90 lbs.
⅜" x ¾"		.064 (14 B&S)	.31 lbs.	¾" x 1"		.125 (⅛")	1.04 lbs.
⅜" x ¾"		.093 (⅜")	.45 lbs.	¾" x 1½"		.125 (⅛")	1.26 lbs.
⅜" x ¾"		.125 (⅛")	.57 lbs.	1" x 1"		.125 (⅛")	1.25 lbs.
⅜" x 1"		.125 (⅛")	.69 lbs.	1" x 1½"		.125 (⅛")	1.48 lbs.
½" x ½"		.093 (⅜")	.45 lbs.	1" x 2"		.125 (⅛")	1.71 lbs.
½" x ¾"		.093 (⅜")	.53 lbs.	1½" x 1½"		.125 (⅛")	1.94 lbs.
½" x ¾"		.125 (⅛")	.68 lbs.				

HALF HARD DRAWN 15% NICKEL SILVER CHANNELS

In Random 12-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
3/8" x 3/8"		.040 (18 B&S)	.155 lbs.	3/8" x 3/8"		.040 (18 B&S)	.240 lbs.

Other shapes in standard Copper alloys available from the mill.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

PIPE
TUBE
VALVES
FITTINGS

FASTENERS

WELDING
AND
BRAZING

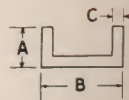
SPECIAL
PRODUCTS

DATA

MONEL
INCONEL
STAINLESS

ARCHITECTURAL EXTRUDED BRONZE CHANNELS

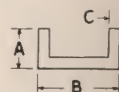
In Random 12- to 16-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
$\frac{3}{8}$ " x $\frac{3}{8}$ "		$\frac{3}{32}$ "	.33 lbs.	$\frac{1}{2}$ " x $1\frac{1}{4}$ "		$\frac{1}{8}$ "	.91 lbs.
$\frac{3}{8}$ " x $\frac{1}{2}$ "		$\frac{1}{8}$ "	.46 lbs.	$\frac{1}{2}$ " x $1\frac{1}{2}$ "		$\frac{1}{8}$ "	1.02 lbs.
$\frac{3}{8}$ " x $\frac{1}{2}$ "		$\frac{3}{32}$ "	.36 lbs.	$\frac{3}{4}$ " x $\frac{3}{4}$ "		$\frac{3}{32}$ "	.70 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "		$\frac{1}{8}$ "	.57 lbs.	$\frac{3}{4}$ " x $\frac{3}{4}$ "		$\frac{1}{8}$ "	.90 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "		$\frac{3}{32}$ "	.45 lbs.	$\frac{3}{4}$ " x 1 "		$\frac{1}{8}$ "	1.04 lbs.
$\frac{3}{8}$ " x 1 "		$\frac{1}{8}$ "	.69 lbs.	$\frac{3}{4}$ " x $1\frac{1}{2}$ "		$\frac{1}{8}$ "	1.26 lbs.
$\frac{1}{2}$ " x $\frac{1}{2}$ "		$\frac{3}{32}$ "	.45 lbs.	1 " x 1 "		$\frac{1}{8}$ "	1.25 lbs.
$\frac{1}{2}$ " x $\frac{3}{4}$ "		$\frac{3}{32}$ "	.53 lbs.	1 " x $1\frac{1}{2}$ "		$\frac{1}{8}$ "	1.48 lbs.
$\frac{1}{2}$ " x $\frac{3}{4}$ "		$\frac{1}{8}$ "	.68 lbs.	1 " x 2 "		$\frac{1}{8}$ "	1.71 lbs.
$\frac{1}{2}$ " x 1 "		$\frac{1}{8}$ "	.81 lbs.	$1\frac{1}{2}$ " x $1\frac{1}{2}$ "		$\frac{1}{8}$ "	1.94 lbs.

HARD DRAWN COMMERCIAL BRONZE CHANNELS

In Random 12- to 15-Foot Lengths

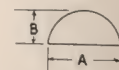


A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
$\frac{3}{8}$ " x $\frac{1}{2}$ "		.081 (12 B&S)	.35 lbs.	$\frac{1}{2}$ " x 1 "		.081 (12 B&S)	.56 lbs.
$\frac{3}{8}$ " x $\frac{5}{8}$ "		.081 (12 B&S)	.38 lbs.	$\frac{1}{2}$ " x $1\frac{1}{4}$ "		.081 (12 B&S)	.69 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "		.064 (14 B&S)	.37 lbs.	$\frac{1}{2}$ " x $1\frac{1}{2}$ "		.081 (12 B&S)	.72 lbs.
$\frac{3}{8}$ " x $\frac{3}{4}$ "		.102 (10 B&S)	.50 lbs.				

HALF ROUND BRASS RODS

Free Turning Quality

In Random 10- to 12-Foot Lengths

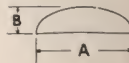


A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot
$\frac{3}{16}$ " x $\frac{3}{32}$ "		.051 lbs.	$\frac{3}{16}$ " x $\frac{7}{32}$ "		.277 lbs.	$\frac{7}{8}$ " x $\frac{7}{16}$ "		1.108 lbs.
$\frac{1}{4}$ " x $\frac{1}{8}$ "		.090 lbs.	$\frac{1}{2}$ " x $\frac{1}{4}$ "		.362 lbs.	1 " x $\frac{1}{2}$ "		1.447 lbs.
$\frac{3}{16}$ " x $\frac{3}{32}$ "		.141 lbs.	$\frac{5}{8}$ " x $\frac{3}{16}$ "		.565 lbs.	$1\frac{1}{4}$ " x $\frac{3}{8}$ "		2.261 lbs.
$\frac{3}{8}$ " x $\frac{3}{16}$ "		.203 lbs.	$\frac{3}{4}$ " x $\frac{3}{8}$ "		.814 lbs.			

HALF OVAL BRASS RODS

Free Turning Quality

In Random 10- to 12-Foot Lengths

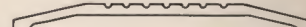
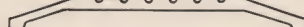
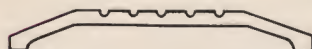


A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot
$\frac{3}{8}$ " x $\frac{3}{32}$ "		.100 lbs.	$\frac{3}{4}$ " x $\frac{3}{16}$ "		.378 lbs.	$1\frac{1}{4}$ " x $\frac{5}{16}$ "		1.005 lbs.
$\frac{1}{2}$ " x $\frac{1}{8}$ "		.167 lbs.	$\frac{7}{8}$ " x $\frac{7}{32}$ "		.512 lbs.	$1\frac{1}{2}$ " x $\frac{3}{8}$ "		1.448 lbs.
$\frac{5}{8}$ " x $\frac{5}{32}$ "		.260 lbs.	1 " x $\frac{1}{4}$ "		.662 lbs.			

BRONZE (EXTRUDED) DOOR SADDLES

Fluted Top

In Random 16-Foot Lengths



SIZE Inches	DIE NO.	APPROX. WT. Per Foot	SIZE Inches	DIE NO.	APPROX. WT. Per Foot	SIZE Inches	DIE NO.	APPROX. WT. Per Foot
4"	23494	2.28 lbs.	5"	23495	3.03 lbs.	6"	23496	3.46 lbs.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

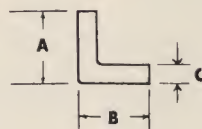


MONEL • INCONEL • STAINLESS STEEL SHAPES

HOT ROLLED ANNEALED MONEL ANGLES

Standard Type

In 12- to 16-Foot Lengths

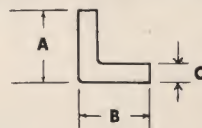


A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
1"	x 1"	x 1/8"	1.0 lbs.	1 1/2"	x 1 1/2"	x 1/8"	1.4 lbs.	2"	x 2"	x 1/8"	1.9 lbs.
1 1/4"	x 1 1/4"	x 1/8"	1.2 lbs.			x 3/16"	2.2 lbs.			x 1/4"	3.9 lbs.
		x 3/16"	1.8 lbs.			x 1/4"	2.9 lbs.	2 1/2"	x 2 1/2"	x 1/4"	4.8 lbs.

Sizes other than above may be had from the mill.

COLD ROLLED MONEL ANGLES No. 35 (SATIN) FINISH—OUTSIDE ONLY

Brake Formed From Strip

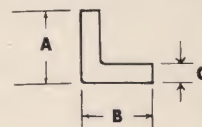


A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
1/2" x 1/2"	x 1/16"		.238 lbs.	3/4" x 3/4"	x 1/16"		.357 lbs.	1" x 1"	x 1/16"		.476 lbs.
	(8-ft. lengths)				(10-ft. lengths)				(10-ft. lengths)		

INCO HOT ROLLED INCONEL ANGLES

Standard Type—Annealed and Pickled

In 6- to 16-Foot Lengths



A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
1"	x 1"	x 3/16"	1.3 lbs.	1 1/4"	x 1 1/4"	x 3/16"	1.7 lbs.	1 1/2"	x 1 1/2"	x 1/4"	2.7 lbs.
1"	x 1"	x 1/4"	1.8 lbs.	1 1/2"	x 1 1/2"	x 3/16"	2.1 lbs.	2"	x 2"	x 1/4"	3.7 lbs.

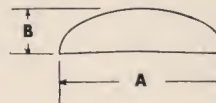
Sizes other than above may be had from the mill.

HOT ROLLED HALF OVAL MONEL RODS

Annealed and Pickled

Marine Application

In 12- to 16-Foot Lengths

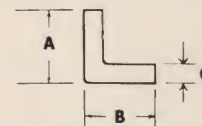


A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	APPROX. WT. Per Foot
3/4" x 3/16"		.36 lbs.	7/8" x 7/32"		.54 lbs.	1" x 1/4"		.64 lbs.

The following are available from mill only:

Half Ovals—From 1/2" x 1/8" to 1 1/2" x 1/2"

Half Rounds—From 1/2" to 1"



Type No. 304 STAINLESS STEEL ANGLES

Hot Rolled, Annealed and Pickled (18% Nickel—8% Chromium)

A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot	A. Inches	B. Inches	C. Inches	APPROX. WT. Per Foot
3/4" x 3/4"	x 1/8"		.59 lbs.	3/4" x 3/4"	x 3/16"		.84 lbs.	1" x 1"	x 1/4"		1.49 lbs.
1" x 1"	x 1/8"		.80 lbs.	1" x 1"	x 3/16"		1.16 lbs.	1 1/4" x 1 1/4"	x 1/4"		1.92 lbs.
1 1/4" x 1 1/4"	x 1/8"		1.01 lbs.	1 1/4" x 1 1/4"	x 3/16"		1.48 lbs.	1 1/2" x 1 1/2"	x 1/4"		2.34 lbs.
1 1/2" x 1 1/2"	x 1/8"		1.23 lbs.	1 1/2" x 1 1/2"	x 3/16"		1.80 lbs.	2" x 2"	x 1/4"		3.19 lbs.
2" x 2"	x 1/8"		1.65 lbs.	2" x 2"	x 3/16"		2.44 lbs.	2 1/2" x 2 1/2"	x 1/4"		4.10 lbs.
2 1/2" x 2 1/2"	x 1/8"		2.08 lbs.	2 1/2" x 2 1/2"	x 3/16"		3.07 lbs.	3" x 3"	x 1/4"		4.90 lbs.

A complete line of Nickel Alloy and Stainless Steel Fasteners is listed in the **FASTENERS SECTION**.

TECHNICAL BULLETINS and ENGINEERING DATA

•

Every metal—every fabrication process—and almost every industrial field provides the subject matter for the multitude of technical and semi-technical literature written for your use. Even a partial listing of this information would fill many pages and possibly still not lead to the answer to your specific question. Tell us your problems and we shall select and send you the proper subject matter. Our engineering and technical sales division is at your service.

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pipe
tube
valves
fittings

...for pipe, tube, valves and fittings section index, see next page



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Detailed Index precedes each alloy or product section.

SCHEDULE 10 PIPE SIZE

The rapid increase in the use of corrosion-resistant piping lines has been accompanied by a need for a more economical pipe without any sacrifice in resistance to corrosion.

Schedule 10 I.P.S. lightwall pipe has been adopted by the American Standards Association as a standard to meet that demand. It supplements the commonly used Standard I.P.S. (Schedule 40) and Extra Heavy I.P.S. (Schedule 80) and represents the thinnest wall pipe which is practical for simple welding techniques. Schedule 10 is gaining wide acceptance for corrosion-resistant uses which do not involve high temperatures or high pressures. Since the effective wall thickness of threaded pipe is the thickness at the bottom of the thread, the substitution of a welded joint for a threaded area permits use of thinner wall pipe to attain equivalent strength.

Schedule 10 is like the heavier walled standards whose common denominator is the outside diameter for uniform joining with fittings, valves, jigs and other parts of a piping system. For example, the outside diameter of 1" I.P.S. is 1.315 inches for all three weights, but the wall thickness of lightwall pipe (Schedule 10) is .109 inches; of standard pipe (Schedule 40) is .133 inches; and of Extra Heavy (Schedule 80) is .179 inches.

The new Schedule 10 series of pipe sizes are listed in the Monel and Stainless pages of this section with the Standard I.P.S. (Schedule 40) and the Extra Heavy (Schedule 80) listings of available pipe.

If a schedule number is suffixed by the letter S (10S—40S—80S) it denotes Stainless Steel.



PIPE • TUBE • VALVES • FITTINGS

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ALUMINUM

Alcoa Aluminum tubing and pipe for architectural and general structural purposes, exclusive of aircraft, are usually made of 61S-T6 alloy. For chemical equipment 3S or Alclad 3S is largely used, although for some purposes 2S is specified. For portable irrigation systems, 63S-T6 tubing, extruded to size without further drawing, is available. Light weight and good resistance to corrosion make this product especially well adapted for this purpose. For automotive fuel, oil, and hydraulic brake lines, 4S tubing is commonly used. In aircraft, 52S-O and 24S-T4 and, in some cases, 24S-T84 are specified, depending on the strength requirements of the service.

*3S-O COILED ALUMINUM TUBING

In 50-Foot Coils

OUTSIDE DIAMETER Inches	WALL THICKNESS Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Coil	OUTSIDE DIAMETER Inches	WALL THICKNESS Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Coil
¼"	.032	.026 lbs.	1.30 lbs.	¾"	.049	.057 lbs.	2.85 lbs.
⅜"	.032	.033 lbs.	1.65 lbs.	1½"	.049	.080 lbs.	4.00 lbs.
½"	.035	.043 lbs.	2.15 lbs.	2"	.049	.103 lbs.	5.15 lbs.

*.049 wall A.G.A. Approved for connecting gas appliances and accessories to house gas pipe lines. Lighter wall thicknesses for gas connections within appliances or accessories.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

ALUMINUM

BRASS
BRONZE
COPPER

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

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PIPE • TUBE • VALVES • FITTINGS



45-O COILED ALUMINUM TUBING

In 25-Foot Coils

OUTSIDE DIAMETER Inches	WALL THICKNESS Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Coil	OUTSIDE DIAMETER Inches	WALL THICKNESS Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Coil
1/4"	.032	.0258 lbs.	.645 lbs.	3/8"	.035	.0439 lbs.	1.097 lbs.
	.035	.0278 lbs.	.695 lbs.		.049	.0590 lbs.	1.475 lbs.
5/16"	.032	.0332 lbs.	.830 lbs.	1/2"	.032	.0550 lbs.	1.375 lbs.
	.035	.0358 lbs.	.895 lbs.		.035	.0600 lbs.	1.500 lbs.
3/8"	.032	.0406 lbs.	1.015 lbs.		.049	.0820 lbs.	2.050 lbs.
					.058	.0950 lbs.	2.375 lbs.

Recommended for automotive lines or lines on stationary equipment where considerable vibration is encountered.

3S-H14 ROUND DRAWN ALUMINUM TUBE

(Former Temper Designation 3S Half Hard)

In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	O. D. Inches	WALL THICKNESS Inches	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length
3/16"	.022 (No. 24)	.013	.013 lbs.	.156 lbs.	1 1/4"	.035 (No. 20)	1.180	.155 lbs.	1.860 lbs.
1/4"	.022 (No. 24)	.206	.018 lbs.	.216 lbs.		.049 (No. 18)	1.152	.210 lbs.	2.520 lbs.
	.035 (No. 20)	.180	.027 lbs.	.324 lbs.	1 1/2"	.035 (No. 20)	1.430	.180 lbs.	2.160 lbs.
3/8"	.022 (No. 24)	.331	.028 lbs.	.336 lbs.		.049 (No. 18)	1.402	.260 lbs.	3.120 lbs.
	.028 (No. 22)	.319	.036 lbs.	.432 lbs.		.065 (No. 16)	1.370	.340 lbs.	4.080 lbs.
	.035 (No. 20)	.305	.043 lbs.	.516 lbs.	1 3/4"	.035 (No. 20)	1.680	.210 lbs.	2.520 lbs.
1/2"	.028 (No. 22)	.444	.049 lbs.	.588 lbs.		.049 (No. 18)	1.652	.300 lbs.	3.600 lbs.
	.035 (No. 20)	.430	.059 lbs.	.708 lbs.		.065 (No. 16)	1.620	.402 lbs.	4.824 lbs.
	.049 (No. 18)	.402	.080 lbs.	.960 lbs.	2"	.032 (No. 21)	1.936	.232 lbs.	*
	.065 (No. 16)	.380	.101 lbs.	1.212 lbs.		.035 (No. 20)	1.930	.250 lbs.	3.000 lbs.
5/8"	.028 (No. 22)	.569	.061 lbs.	.732 lbs.		.049 (No. 18)	1.902	.350 lbs.	4.200 lbs.
	.035 (No. 20)	.555	.075 lbs.	.900 lbs.		.065 (No. 16)	1.870	.450 lbs.	5.400 lbs.
3/4"	.035 (No. 20)	.680	.091 lbs.	1.092 lbs.	2 1/2"	.049 (No. 18)	2.402	.443 lbs.	5.316 lbs.
7/8"	.035 (No. 20)	.805	.109 lbs.	1.308 lbs.		.065 (No. 16)	2.370	.570 lbs.	6.840 lbs.
1"	.035 (No. 20)	.930	.123 lbs.	1.476 lbs.	3"	.065 (No. 16)	2.870	.710 lbs.	8.520 lbs.

For Other Sizes see Heat Exchanger Tubes.

*Specifically produced for awning structures (3S-H18 temper, 16-, 18- and 20-foot lengths).

ROUND ALUMINUM HEAT EXCHANGER TUBE

BARE—In 12-Foot Lengths; ALCLAD (inside)—12-, 14-, 16- or 20-Foot Lengths

Sizes listed below available in Bare Tube. Those indicated by † also carried in ALCLAD.

Tube smaller than 2" O. D. conforms to A.S.T.M. Spec. B234.

Alloy and Temper: Under 1 1/2" O. D. 3S-H14, 1 1/2" O. D. and over 63S-T42.

O. D. Inches	WALL THICKNESS Inches	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	I. D. Inches	APPROX. WT. Per Foot
5/8"	.049 (No. 18)	.527	.105 lbs.	1"	†.083 (No. 14)	.834	.283 lbs.
	.065 (No. 16)	.495	.135 lbs.		.109 (No. 12)	.782	.361 lbs.
3/4"	.049 (No. 18)	.652	.128 lbs.	1 1/4"	.065 (No. 16)	1.120	.286 lbs.
	†.065 (No. 16)	.620	.165 lbs.		.083 (No. 14)	1.084	.360 lbs.
	†.083 (No. 14)	.584	.206 lbs.		.109 (No. 12)	1.032	.463 lbs.
7/8"	.049 (No. 18)	.777	.150 lbs.		.134 (No. 10)	.982	.555 lbs.
	.065 (No. 16)	.745	.195 lbs.	1 1/2"	.094 (No. 13)*	1.312	.492 lbs.
	.083 (No. 14)	.709	.244 lbs.	2"	.094 (No. 13)*	1.812	.666 lbs.
1"	.049 (No. 18)	.902	.173 lbs.	2 1/2"	.094 (No. 13)*	2.312	.838 lbs.
	†.065 (No. 16)	.870	.226 lbs.				

*No. 13 Stubs Gauge is actually .095.

Heat Exchanger Tube Sheets (3S-H14 Alclad) are listed on Page 19; for Tie Rods use 61ST Rod on Page 53.

TELEVISION MAST TUBE—A strong Aluminum alloy tube for use as an antenna support.

Alloy 63S-T832—1 1/4" O. D. x .042" wall. Weight per foot, .187 lbs. Weight per length, 2.244 lbs.

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION**.



PIPE • TUBE • VALVES • FITTINGS

61S-T6 ROUND ALUMINUM TUBE

(Former Temper Designation 61ST)
In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	Per Length	O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	Per Length
3/8"	.035 (No. 20)		.117	.019 lbs.	.228 lbs.	1"	.065 (No. 16)		.870	.220 lbs.	2.640 lbs.
	.049 (No. 18)		.089	.025 lbs.	.330 lbs.		.083 (No. 14)		.834	.281 lbs.	3.372 lbs.
1/4"	.035 (No. 20)		.180	.027 lbs.	.324 lbs.	1 1/8"	.035 (No. 20)		1.055	.139 lbs.	1.668 lbs.
	.049 (No. 18)		.152	.036 lbs.	.432 lbs.		.058 (No. 17)		1.009	.228 lbs.	2.736 lbs.
	.058 (No. 17)		.134	.041 lbs.	.492 lbs.	1 1/4"	.035 (No. 20)		1.180	.155 lbs.	1.860 lbs.
3/16"	.035 (No. 20)		.242	.036 lbs.	.432 lbs.		.049 (No. 18)		1.152	.210 lbs.	2.520 lbs.
	.049 (No. 18)		.214	.047 lbs.	.564 lbs.		.058 (No. 17)		1.134	.256 lbs.	3.072 lbs.
	.058 (No. 17)		.196	.055 lbs.	.660 lbs.		.065 (No. 16)		1.120	.284 lbs.	3.408 lbs.
3/8"	.035 (No. 20)		.305	.043 lbs.	.516 lbs.		.083 (No. 14)		1.804	.357 lbs.	4.284 lbs.
	.049 (No. 18)		.277	.060 lbs.	.720 lbs.	1 3/8"	.035 (No. 20)		1.305	.173 lbs.	2.076 lbs.
	.058 (No. 17)		.259	.068 lbs.	.816 lbs.		.058 (No. 17)		1.249	.282 lbs.	3.384 lbs.
	.065 (No. 16)		.245	.074 lbs.	.888 lbs.	1 1/2"	.035 (No. 20)		1.430	.180 lbs.	2.160 lbs.
7/16"	.035 (No. 20)		.367	.051 lbs.	.612 lbs.		.049 (No. 18)		1.402	.260 lbs.	3.120 lbs.
	.049 (No. 18)		.339	.070 lbs.	.840 lbs.		.058 (No. 17)		1.384	.309 lbs.	3.708 lbs.
	.065 (No. 16)		.307	.089 lbs.	1.068 lbs.		.065 (No. 16)		1.370	.344 lbs.	4.128 lbs.
1/2"	.028 (No. 22)		.444	.049 lbs.	.588 lbs.		.083 (No. 14)		1.334	.434 lbs.	5.208 lbs.
	.035 (No. 20)		.430	.059 lbs.	.708 lbs.		*.125 1/8"		1.250	.618 lbs.	7.416 lbs.
	.049 (No. 18)		.402	.082 lbs.	.984 lbs.		*.250 1/4"		1.000	1.236 lbs.	14.832 lbs.
	.058 (No. 17)		.384	.095 lbs.	1.040 lbs.	1 5/8"	.035 (No. 20)		1.555	.206 lbs.	2.472 lbs.
	.065 (No. 16)		.370	.107 lbs.	1.284 lbs.		.058 (No. 17)		1.509	.336 lbs.	4.032 lbs.
5/8"	.028 (No. 22)		.569	.061 lbs.	.732 lbs.	1 3/4"	.058 (No. 17)		1.634	.363 lbs.	4.356 lbs.
	.035 (No. 20)		.555	.075 lbs.	.900 lbs.		.083 (No. 14)		1.584	.510 lbs.	6.120 lbs.
	.049 (No. 18)		.527	.106 lbs.	1.272 lbs.	2"	.049 (No. 18)		1.902	.350 lbs.	4.200 lbs.
	.058 (No. 17)		.509	.121 lbs.	1.452 lbs.		.065 (No. 16)		1.870	.450 lbs.	5.400 lbs.
	.065 (No. 16)		.495	.137 lbs.	1.644 lbs.		.083 (No. 14)		1.834	.590 lbs.	7.080 lbs.
3/4"	.035 (No. 20)		.680	.091 lbs.	1.092 lbs.		*.125 1/8"		1.750	.830 lbs.	9.960 lbs.
	.049 (No. 18)		.652	.125 lbs.	1.500 lbs.		*.250 1/4"		1.500	1.660 lbs.	19.920 lbs.
	.058 (No. 17)		.634	.148 lbs.	1.776 lbs.	2 1/4"	.049 (No. 18)		2.152	.398 lbs.	4.776 lbs.
	.065 (No. 16)		.620	.160 lbs.	1.920 lbs.		.065 (No. 16)		2.120	.520 lbs.	6.240 lbs.
	.083 (No. 14)		.584	.204 lbs.	2.448 lbs.		.083 (No. 14)		2.804	.660 lbs.	7.920 lbs.
7/8"	.035 (No. 20)		.805	.108 lbs.	1.308 lbs.	2 1/2"	.065 (No. 16)		2.370	.587 lbs.	7.044 lbs.
	.049 (No. 18)		.777	.151 lbs.	1.810 lbs.		.083 (No. 14)		2.334	.740 lbs.	8.880 lbs.
	.058 (No. 17)		.759	.175 lbs.	2.100 lbs.		*.125 1/8"		2.250	1.060 lbs.	12.720 lbs.
	.065 (No. 16)		.745	.199 lbs.	2.399 lbs.		*.250 1/4"		2.000	2.120 lbs.	25.440 lbs.
1"	.035 (No. 20)		.930	.123 lbs.	1.476 lbs.	3"	.065 (No. 16)		2.870	.710 lbs.	8.520 lbs.
	.049 (No. 18)		.902	.170 lbs.	2.040 lbs.		*.125 1/8"		2.700	1.300 lbs.	15.600 lbs.
	.058 (No. 17)		.884	.202 lbs.	2.424 lbs.		*.250 1/4"		2.500	2.600 lbs.	31.200 lbs.

*These sizes are extruded. All other sizes are drawn tubes.

52S-O ROUND DRAWN ALUMINUM TUBE

In 12-Foot Lengths

All sizes except 1 3/4" and 2" O.D. are in accordance with Federal Specification WW-T-787.

O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	Per Length	O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	Per Length
1/8"	.035 (No. 20)		.055	.011 lbs.	.132 lbs.	3/4"	.035 (No. 20)		.680	.090 lbs.	1.080 lbs.
3/16"	.035 (No. 20)		.117	.019 lbs.	.228 lbs.		.049 (No. 18)		.652	.124 lbs.	1.488 lbs.
1/4"	.035 (No. 20)		.180	.027 lbs.	.324 lbs.	1"	.035 (No. 20)		.930	.122 lbs.	1.464 lbs.
3/8"	.035 (No. 20)		.305	.043 lbs.	.516 lbs.		.049 (No. 18)		.902	.168 lbs.	2.016 lbs.
	.049 (No. 18)		.227	.057 lbs.	.684 lbs.	1 1/4"	.049 (No. 18)		1.152	.212 lbs.	2.544 lbs.
1/2"	.035 (No. 20)		.430	.058 lbs.	.696 lbs.	1 1/2"	.049 (No. 18)		1.402	.260 lbs.	3.120 lbs.
	.049 (No. 18)		.402	.080 lbs.	.960 lbs.	1 3/4"	.049 (No. 18)		1.652	.301 lbs.	3.612 lbs.
5/8"	.035 (No. 20)		.555	.072 lbs.	.864 lbs.	2"	.049 (No. 18)		1.902	.345 lbs.	4.140 lbs.
	.049 (No. 18)		.527	.101 lbs.	1.212 lbs.						

Complete stocks of Aluminum Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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24S-T3 ROUND DRAWN ALUMINUM TUBE TO SPEC. A.M.S. 4086B

Specially Fabricated for Aircraft Hydraulic Lines

(Former Temper Designation 24ST)

In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length
1/4"	.028	(No. 22)	.194	.023 lbs.	.276 lbs.	1/2"	.049	(No. 18)	.402	.082 lbs.	.984 lbs.
3/16"	.035	(No. 20)	.242	.036 lbs.	.432 lbs.	5/8"	.058	(No. 17)	.509	.121 lbs.	1.452 lbs.
3/8"	.035	(No. 20)	.305	.044 lbs.	.528 lbs.	3/4"	.065	(No. 16)	.620	.160 lbs.	1.920 lbs.

24S-T3 ROUND DRAWN ALUMINUM TUBE

(Former Temper Designation 24ST)

In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length	O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WEIGHT Per Foot	APPROX. WEIGHT Per Length
1/4"	.035	(No. 20)	.180	.028 lbs.	.336 lbs.	1"	.049	(No. 18)	.902	.175 lbs.	2.100 lbs.
3/8"	.049	(No. 18)	.277	.060 lbs.	.720 lbs.		.065	(No. 16)	.870	.229 lbs.	2.748 lbs.
1/2"	.035	(No. 20)	.430	.061 lbs.	.732 lbs.	1 1/4"	.049	(No. 18)	1.152	.216 lbs.	2.592 lbs.
5/8"	.035	(No. 20)	.555	.077 lbs.	.924 lbs.	1 1/2"	.035	(No. 20)	1.430	.180 lbs.	2.160 lbs.
3/4"	.035	(No. 20)	.680	.095 lbs.	1.128 lbs.		.049	(No. 18)	1.402	.258 lbs.	3.216 lbs.
	.049	(No. 18)	.652	.129 lbs.	1.548 lbs.		.065	(No. 16)	1.370	.340 lbs.	4.080 lbs.
7/8"	.049	(No. 18)	.777	.151 lbs.	1.810 lbs.	2"	.065	(No. 16)	1.870	.463 lbs.	5.556 lbs.
1"	.035	(No. 20)	.930	.127 lbs.	1.524 lbs.						

3S-F "AS DRAWN" RECTANGULAR ALUMINUM TUBE

(Square Edge and Square Inside Corners)

In 18-Foot and 20-Foot Lengths

OUTSIDE DIMENSIONS	WALL THICKNESS	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	OUTSIDE DIMENSIONS	WALL THICKNESS	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
1/2" x 1"	.078"	.246 lbs.	4.426 lbs.	1 3/4" x 3"	.093"	.997 lbs.	17.946 lbs.
3/4" x 1 1/2"	.049"	.248 lbs.	4.464 lbs.		.125"	1.323 lbs.	23.814 lbs.
	.078"	.384 lbs.	6.912 lbs.	1 3/4" x 3 1/2"	.125"	1.470 lbs.	26.460 lbs.
1" x 1 1/2"	.078"	.431 lbs.	7.758 lbs.	*1 3/4" x 4"	.125"	1.650 lbs.	33.000 lbs.
1" x 2"	.083"	.553 lbs.	9.954 lbs.	*1 3/4" x 4 1/2"	.125"	1.765 lbs.	35.300 lbs.
1 1/4" x 2 1/2"	.083"	.700 lbs.	12.600 lbs.	*1 3/4" x 5"	.125"	1.910 lbs.	38.200 lbs.
1 1/2" x 2"	.078"	.622 lbs.	11.196 lbs.	*2" x 3"	.125"	1.395 lbs.	27.900 lbs.

*20-foot lengths; all others 18-foot.

3S-F "AS DRAWN" SQUARE ALUMINUM TUBE

(Square Edge and Square Inside Corners)

In 18-Foot Lengths

OUTSIDE DIMENSIONS	WALL THICKNESS	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length	OUTSIDE DIMENSIONS	WALL THICKNESS	APPROXIMATE WEIGHT Per Foot	APPROXIMATE WEIGHT Per Length
1/2" sq.	.062"	.130 lbs.	2.340 lbs.	1 1/4" sq.	.062"	.353 lbs.	6.354 lbs.
3/4" sq.	.062"	.167 lbs.	3.006 lbs.	1 1/2" sq.	.062"	.428 lbs.	7.704 lbs.
3/4" sq.	.062"	.205 lbs.	3.690 lbs.	1 3/4" sq.	.062"	.502 lbs.	9.036 lbs.
1" sq.	.062"	.278 lbs.	5.004 lbs.	2" sq.	.062"	.576 lbs.	10.368 lbs.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.



PIPE • TUBE • VALVES • FITTINGS

3S-H18 STANDARD ALUMINUM PIPE

In 12-Foot Lengths

I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT		I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT	
				Per Foot	Per Length					Per Foot	Per Length
1/8"	.068	.405	.269	.084 lbs.	1.008 lbs.	1/2"	.109	.840	.622	.294 lbs.	3.528 lbs.
1/4"	.088	.540	.364	.147 lbs.	1.764 lbs.	3/4"	.113	1.050	.824	.390 lbs.	4.680 lbs.
3/8"	.091	.675	.493	.196 lbs.	2.352 lbs.						

Larger sizes of 3S Aluminum Pipe are extruded and listed in following table:

3S-F EXTRUDED STANDARD ALUMINUM PIPE

In 12-Foot Lengths

I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT		I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT	
				Per Foot	Per Length					Per Foot	Per Length
1"	.133	1.315	1.049	.580 lbs.	6.690 lbs.	3 1/2"	.226	4.000	3.548	3.147 lbs.	37.764 lbs.
*1 1/4"	.140	1.660	1.380	.785 lbs.	9.420 lbs.	4"	.237	4.500	4.026	3.729 lbs.	44.748 lbs.
*1 1/2"	.145	1.900	1.610	.939 lbs.	11.268 lbs.	5"	.258	5.563	5.047	5.051 lbs.	60.612 lbs.
*2"	.154	2.375	2.067	1.262 lbs.	15.144 lbs.	6"	.280	6.625	6.065	6.556 lbs.	78.672 lbs.
*2 1/2"	.203	2.875	2.469	2.002 lbs.	24.024 lbs.	8"	.277	8.625	8.071	8.543 lbs.	102.516 lbs.
3"	.216	3.500	3.068	2.617 lbs.	31.404 lbs.						

*Also carried in 20-foot lengths.

61S-T6 STANDARD ALUMINUM PIPE

In 12-Foot Lengths

I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT		I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT	
				Per Foot	Per Length					Per Foot	Per Length
1/8"	.068	.405	.269	.084 lbs.	1.008 lbs.	1 1/4"	.140	1.660	1.380	.785 lbs.	9.420 lbs.
1/4"	.088	.540	.364	.147 lbs.	1.764 lbs.	1 1/2"	.145	1.900	1.610	.939 lbs.	11.268 lbs.
3/8"	.091	.675	.493	.196 lbs.	2.352 lbs.	2"	.154	2.375	2.067	1.262 lbs.	15.144 lbs.
1/2"	.109	.840	.622	.294 lbs.	3.528 lbs.	2 1/2"	.203	2.875	2.469	2.002 lbs.	24.024 lbs.
3/4"	.113	1.050	.824	.390 lbs.	4.680 lbs.	3"	.216	3.500	3.068	2.617 lbs.	31.404 lbs.
1"	.133	1.315	1.049	.580 lbs.	6.690 lbs.						

63S-T6 STANDARD ALUMINUM PIPE

In 12-Foot Lengths

I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT		I.P.S. SIZE Inches	WALL THICK- NESS Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT	
				Per Foot	Per Length					Per Foot	Per Length
1/8"	.068	.405	.269	.084 lbs.	1.008 lbs.	1 1/2"	.145	1.900	1.610	.939 lbs.	11.268 lbs.
1/4"	.088	.540	.364	.147 lbs.	1.764 lbs.	2"	.154	2.375	2.067	1.262 lbs.	15.144 lbs.
3/8"	.091	.675	.493	.196 lbs.	2.352 lbs.	2 1/2"	.203	2.875	2.469	2.002 lbs.	24.024 lbs.
1/2"	.109	.840	.622	.294 lbs.	3.528 lbs.	3"	.216	3.500	3.068	2.617 lbs.	31.404 lbs.
3/4"	.113	1.050	.824	.390 lbs.	4.680 lbs.	4"	.237	4.500	4.026	3.733 lbs.	44.796 lbs.
1"	.133	1.315	1.049	.580 lbs.	6.690 lbs.	5"	.258	5.563	5.047	5.051 lbs.	60.684 lbs.
1 1/4"	.140	1.660	1.380	.785 lbs.	9.420 lbs.	6"	.280	6.625	6.065	6.564 lbs.	78.768 lbs.

3S RIGID ALUMINUM CONDUIT

Specially treated on the interior for easy passage and carrying of electrical wiring lines. Underwriters Laboratories approved. Both ends threaded, one end fitted with a coupling and the other end with cardboard protector.

In 10-Foot Lengths
For Electrical Wiring Lines

I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT		I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	APPROX. WEIGHT	
			Per Foot	Per Length				Per Foot	Per Length
1/2"	.840	.622	.303 lbs.	3.03 lbs.	1"	1.315	1.049	.601 lbs.	6.01 lbs.
3/4"	1.050	.824	.404 lbs.	4.04 lbs.					

1 1/4"—1 1/2"—2"—2 1/2"—3" I.P.S. Sizes promptly available.

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

ALUMI-
NUM

BRASS
BRONZE
COPPER

FASTEN-
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS
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127

PARKER
FITTINGS
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SARAN
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PIPE • TUBE • VALVES • FITTINGS



ALCOA CAST ALUMINUM STANDARD PIPE FITTINGS

Threaded

FITTINGS		I. P. S. Sizes													
		1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	
	CAPS.....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	COUPLINGS.....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	CROSSES.....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	ELBOWS—90°....	*	*	*	*	*	*	*	*	*	*	*	*	*	
	ELBOWS—45°....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	ELBOWS—Street..	*	*	*	*	*	*	*	*	*	*	*	..	*	
	FLANGES—(Faced and Drilled), ... ..	..	*	*	*	*	*	*	*	*	*	*	..	*
	LOCKNUTS.....	..	..	*	*	*	*	*	*	*	..	..	..	..
	PLUGS.....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	TEES.....	*	*	*	*	*	*	*	*	*	*	*	..	*	
	UNIONS.....	..	*	*	*	*	*	*	*	*	*	*	..	..

Nipples—All sizes and lengths, up to and including 4" I.P.S., are available.

Aluminum Welding Type Fittings also available from mill. For illustrations of Welding Fittings, see Page 124.

ALUMINUM STANDARD I. P. S. BUSHINGS

1/4" x 1/8"	3/4" x 3/8"	1 1/4" x 1/2"	1 1/2" x 1"	2" x 1 1/2"	3" x 1"	4" x 1 1/2"
3/8" x 1/8"	3/4" x 1/2"	1 1/4" x 3/4"	1 1/2" x 1 1/4"	2 1/2" x 1"	3" x 1 1/4"	4" x 2"
3/8" x 1/4"	1" x 1/4"	1 1/4" x 1"	2" x 1/2"	2 1/2" x 1 1/4"	3" x 1 1/2"	4" x 2 1/2"
1/2" x 1/4"	1" x 3/8"	1 1/2" x 1/4"	2" x 3/4"	2 1/2" x 1 1/2"	3" x 2"	4" x 3"
1/2" x 3/8"	1" x 1/2"	1 1/2" x 1/2"	2" x 1"	2 1/2" x 2"	3" x 2 1/2"	
3/4" x 1/4"	1" x 3/4"	1 1/2" x 3/4"	2" x 1 1/4"	3" x 3/4"	4" x 1"	

ALUMINUM STANDARD I. P. S. REDUCERS OR REDUCING COUPLINGS

3/8" x 1/4"	3/4" x 1/4"	1" x 3/8"	1 1/4" x 3/4"	1 1/2" x 1"	2" x 3/4"	2" x 1 1/2"
1/2" x 1/4"	3/4" x 3/8"	1" x 1/2"	1 1/4" x 1"	1 1/2" x 1 1/4"	2" x 1"	2 1/2" x 1 1/2"
1/2" x 3/8"	3/4" x 1/2"	1" x 3/4"	1 1/2" x 3/4"	2" x 1/2"	2" x 1 1/4"	

ALUMINUM STANDARD I. P. S. 90° REDUCING ELBOWS

3/4" x 1/2"	1" x 3/4"	1 1/4" x 1"	1 1/2" x 1 1/4"
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Complete stocks of Aluminum Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

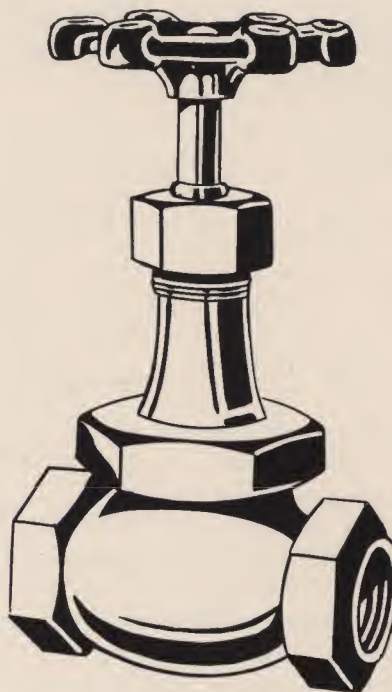
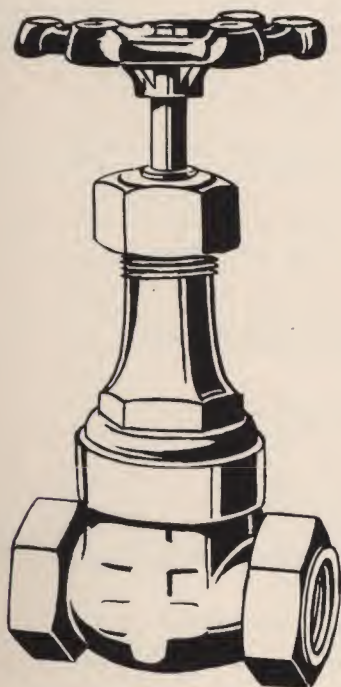


PIPE • TUBE • VALVES • FITTINGS

ALUMINUM VALVES—POWELL

GATE VALVES—SCREWED TYPE No. 1859
Screwed Bonnet—Inside Screws
Rising Stem with 18-8S Stem and Solid Disc

GLOBE VALVES—SCREWED TYPE No. 1853
Union Bonnet with 18-8S Stem and
Composition Disc



These Aluminum Gate Valves have screw-in bonnet and inside screw rising stem. All parts, except the solid wedge, stem and malleable iron handwheel are made of Aluminum. Seats are cast integral with the body.

The valves are cast from Alcoa Aluminum No. 43, with wedges and stems made from 18-8S Type 304 Stainless Steel.

SIZES

1/4" I.P.S.	1" I.P.S.
3/8" I.P.S.	1 1/4" I.P.S.
1/2" I.P.S.	1 1/2" I.P.S.
3/4" I.P.S.	2" I.P.S.

Other types and sizes available for mill shipment.

All parts except the stem, disc, handwheel and handwheel nut, are cast from Alcoa No. 43 Aluminum. The Aluminum disc holder is held on to the stem by means of a "T" slot. The seat is cast integral with the valve body. End flanges are plain faced.

SIZES

1/4" I.P.S.
3/8" I.P.S.
1/2" I.P.S.
3/4" I.P.S.
1" I.P.S.

ALCOA ANTI-SEIZE THREAD LUBRICANT

Stocked in 1/2-lb. Jars

A zinc dust and vaseline compound for fitting Aluminum pipe joints. Use of this lubricant permits tightening to close fits, but does not act as a sealing compound.

For a comparison of the properties and qualities of different Alcoa Aluminum alloys, consult chart on pages 4 and 5.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

BRASS
BRONZE
COPPER

FASTEN-
ERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROJECTS

STAIN-
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PIPE • TUBE • VALVES • FITTINGS



ALUMINUM UTILITY HANDRAIL FITTINGS

Alcoa Aluminum handrail fittings, together with Aluminum pipe, provide a lightweight structural material for economical railings.

1½" Nominal Pipe Size

	TYPES			TYPES	
	FLUSH	STANDARD		FLUSH	STANDARD
BRACKETS.....			TEES—90°.....		
CROSSES—90°.....			TEES—90° Side Outlet.....		
ELBOWS—90°.....			TEES—35° Half Horizontal Angle.....		
ELBOWS—90° Side Outlet.....			TEES—40° Half Horizontal Angle.....		
ELBOWS—35° Angle Vertical....			TEES—35° Horizontal.....		
ELBOWS—40° Angle Vertical....			TEES—40° Horizontal.....		
FLANGES—Floor.....					

The publication, "Utility Railings of Alcoa Aluminum," presents design schedules, physical properties and other information for the architect, engineer, industrial designer and fabricator. Write for it.

635-T832 ALUMINUM HANDRAIL PIPE—For use as utility railing with above fittings.

1½" I. P. S., in 12-foot lengths.

Weight per foot, .939 lbs. Weight per length, 11.67 lbs.

See **SHAPES SECTION** for ornamental railings and other architectural designs.

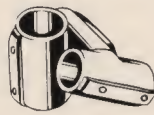
NU-RAIL—ALUMINUM SLIP-ON FITTINGS



Cross Fitting



Corner Fitting



Adjustable Cross Fitting



Floor Flange



Wall Flange



Plug

An entirely new method of fitting pipe. For use with Aluminum or Iron pipe to construct railings, scaffolds, inclosures, truck racks, storage racks, or wherever pipe is used in structural applications.

Eliminates pipe threading. Quickly assembled or disassembled by set screws, with all dimensions readily adjustable.

Only 3 versatile fittings and 3 fixtures are used in an infinite variety of constructions. Stocked in Standard Iron Pipe Sizes, ¾", 1", 1¼", 1½", 2".

Write for the illustrated booklet showing money-saving applications for Nu-Rail Fittings.

For Aluminum Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

PIPE • TUBE • VALVES • FITTINGS

INDEX—BRASS • BRONZE • COPPER • TUBE • PIPE

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PIPE

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FITTINGS 110 and 112

Anaconda copper and copper alloy tube and pipe have been an important contribution to industry where they are employed for conveying steam, hot and cold water, compressed air, gases, fuel oil, refrigerants, lubricants, and an almost infinite variety of process materials in fluid and semi-solid form.

In the plumbing, heating and air conditioning fields Type "K" tube, having a heavier wall, is suggested for all underground supply lines, and wherever the water is particularly corrosive, and Type "L" for most interior plumbing work.

Primarily, copper and copper alloy tubes and pipe offer freedom from rust and corrosion, and ease of fabrication. A comparison of qualities, properties and applications of Anaconda alloys appears on pages 6 and 7.

BRASS
BRONZE
COPPER

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

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PRODUCTS

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DATA

INDEX

BRASS • BRONZES

HARD DRAWN ROUND SEAMLESS BRASS TUBE

In 12-Foot Lengths, Except as Noted

O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot
1/16"	.016 (No. 27 SG) x 3 ft.	.030	.009 lbs.	1 3/16"	.028 (No. 21 B&S)	.756	.254 lbs.
3/32"	.014 (No. 28 SG) x 3 ft.	.065	.013 lbs.	7/8"	.020 (No. 24 B&S)	.835	.198 lbs.
1/8"	.014 (No. 28 SG) x 3 ft.	.097	.018 lbs.		.032 (No. 21 SG)	.811	.312 lbs.
	.020 (No. 24 B&S)	.085	.024 lbs.		.042 (No. 19 SG)	.791	.405 lbs.
	.032 (No. 21 SG)	.061	.034 lbs.		.045 (No. 17 B&S)	.785	.432 lbs.
3/16"	.014 (No. 28 SG) x 6 ft.	.159	.028 lbs.		.050 (No. 16 B&S)	.775	.477 lbs.
	.032 (No. 21 SG)	.123	.058 lbs.		.058 (No. 17 SG)	.759	.548 lbs.
1/4"	.014 (No. 28 SG) x 6 ft.	.222	.038 lbs.		.065 (No. 16 SG)	.745	.609 lbs.
	.025 (No. 22 B&S)	.200	.065 lbs.	1 1/16"	.042 (No. 19 SG)	.853	.435 lbs.
	.032 (No. 21 SG)	.186	.081 lbs.	1"	.020 (No. 24 B&S)	.960	.227 lbs.
	.045 (No. 17 B&S)	.160	.107 lbs.		.025 (No. 22 B&S)	.950	.282 lbs.
	.065 (No. 16 SG)	.120	.139 lbs.		.032 (No. 21 SG)	.936	.359 lbs.
3/16"	.025 (No. 22 B&S)	.262	.083 lbs.		.042 (No. 19 SG)	.916	.466 lbs.
	.032 (No. 21 SG)	.248	.104 lbs.		.045 (No. 17 B&S)	.910	.497 lbs.
	.042 (No. 19 SG)	.228	.132 lbs.		.050 (No. 16 B&S)	.900	.550 lbs.
	.045 (No. 17 B&S)	.222	.138 lbs.		.065 (No. 16 SG)	.870	.703 lbs.
3/8"	.014 (No. 28 SG) x 6 ft.	.347	.059 lbs.	1 1/8"	.042 (No. 19 SG)	.978	.496 lbs.
	.020 (No. 24 B&S)	.335	.082 lbs.	1 1/4"	.025 (No. 22 B&S)	1.075	.318 lbs.
	.032 (No. 21 SG)	.311	.127 lbs.		.042 (No. 19 SG)	1.041	.526 lbs.
	.042 (No. 19 SG)	.291	.162 lbs.		.065 (No. 16 SG)	.995	.797 lbs.
	.045 (No. 17 B&S)	.285	.173 lbs.	1 1/2"	.025 (No. 22 B&S)	1.200	.354 lbs.
	.065 (No. 16 SG)	.245	.233 lbs.		.032 (No. 20 B&S)	1.186	.451 lbs.
7/16"	.020 (No. 24 B&S)	.397	.097 lbs.		.042 (No. 19 SG)	1.166	.587 lbs.
	.028 (No. 21 B&S)	.381	.133 lbs.		.045 (No. 17 B&S)	1.160	.638 lbs.
	.042 (No. 19 SG)	.353	.192 lbs.		.050 (No. 16 B&S)	1.150	.695 lbs.
1/2"	.020 (No. 24 B&S)	.460	.111 lbs.		.072 (No. 15 SG)	1.106	.982 lbs.
	.025 (No. 22 B&S)	.450	.137 lbs.	1 3/8"	.032 (No. 21 SG)	1.311	.497 lbs.
	.032 (No. 21 SG)	.436	.173 lbs.		.045 (No. 17 B&S)	1.285	.695 lbs.
	.042 (No. 19 SG)	.416	.223 lbs.		.065 (No. 16 SG)	1.245	.985 lbs.
	.045 (No. 17 B&S)	.410	.238 lbs.	1 1/2"	.025 (No. 22 B&S)	1.450	.427 lbs.
	.049 (No. 18 SG)	.402	.256 lbs.		.032 (No. 20 B&S)	1.436	.544 lbs.
	.065 (No. 16 SG)	.370	.327 lbs.		.042 (No. 19 SG)	1.416	.709 lbs.
5/16"	.020 (No. 24 B&S)	.522	.126 lbs.		.045 (No. 17 B&S)	1.410	.770 lbs.
	.028 (No. 21 B&S)	.506	.173 lbs.		.050 (No. 16 B&S)	1.400	.822 lbs.
	.042 (No. 19 SG)	.478	.253 lbs.		.065 (No. 16 SG)	1.370	1.080 lbs.
3/8"	.020 (No. 24 B&S)	.585	.140 lbs.		.083 (No. 14 SG)	1.334	1.361 lbs.
	.025 (No. 22 B&S)	.575	.174 lbs.	1 5/8"	.045 (No. 17 B&S)	1.535	.823 lbs.
	.032 (No. 21 SG)	.561	.220 lbs.		.083 (No. 14 SG)	1.459	1.480 lbs.
	.042 (No. 19 SG)	.541	.283 lbs.	1 3/4"	.032 (No. 20 B&S)	1.686	.636 lbs.
	.045 (No. 17 B&S)	.535	.302 lbs.		.095 (No. 13 SG)	1.560	1.820 lbs.
	.049 (No. 18 SG)	.527	.327 lbs.	2"	.032 (No. 20 B&S)	1.936	.729 lbs.
	.065 (No. 16 SG)	.495	.421 lbs.		.045 (No. 17 B&S)	1.910	1.020 lbs.
1 1/16"	.028 (No. 21 B&S)	.631	.214 lbs.		.049 (No. 18 SG)	1.902	1.106 lbs.
3/4"	.020 (No. 24 B&S)	.710	.169 lbs.		.065 (No. 16 SG)	1.870	1.456 lbs.
	.025 (No. 22 B&S)	.700	.210 lbs.		.095 (No. 13 SG)	1.810	2.095 lbs.
	.032 (No. 21 SG)	.686	.266 lbs.	2 1/4"	.045 (No. 17 B&S)	2.160	1.150 lbs.
	.042 (No. 19 SG)	.666	.344 lbs.		.065 (No. 16 SG)	2.120	1.644 lbs.
	.045 (No. 17 B&S)	.660	.367 lbs.		.109 (No. 12 SG)	2.032	2.701 lbs.
	.050 (No. 16 B&S)	.650	.405 lbs.				
	.058 (No. 17 SG)	.634	.465 lbs.				
	.065 (No. 16 SG)	.620	.515 lbs.				

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

PIPE • TUBE • VALVES • FITTINGS

HARD DRAWN ROUND SEAMLESS BRASS TUBE—Continued

O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot
2½"	.042 (No. 19 SG)	2.416	1.195 lbs.	4"	.065 (No. 16 SG)	3.870	2.960 lbs.
	.045 (No. 17 B&S)	2.410	1.280 lbs.		.083 (No. 14 SG)	3.834	3.763 lbs.
	.065 (No. 16 SG)	2.370	1.832 lbs.		.120 (No. 11 SG)	3.760	5.389 lbs.
	.109 (No. 12 SG)	2.282	3.016 lbs.		.134 (No. 10 SG)	3.732	5.996 lbs.
2¾"	.065 (No. 16 SG)	2.620	2.020 lbs.	4½"	.120 (No. 11 SG)	4.260	6.083 lbs.
3"	.065 (No. 16 SG)	2.870	2.208 lbs.	5"	.120 (No. 11 SG)	4.760	6.777 lbs.
	.120 (No. 11 SG)	2.760	4.000 lbs.	6"	.120 (No. 11 SG)	5.760	8.166 lbs.
3½"	.134 (No. 10 SG)	3.232	5.220 lbs.				

ROUND SEAMLESS TELESCOPE BRASS TUBE

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
*½"	.016 (No. 27)	.009 lbs.	¾"	.014 (No. 28)	.028 lbs.
*¾"	.014 (No. 28)	.013 lbs.	1¼"	.014 (No. 28)	.038 lbs.
*1⅛"	.014 (No. 28)	.018 lbs.	1½"	.014 (No. 28)	.058 lbs.

*Stocked in 3-foot lengths. Other sizes, 6-foot lengths. Each size telescopes into the next larger size.

SOFT ROUND SEAMLESS BRASS TUBE

In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
¾"	.042 (No. 19)	.132 lbs.	1½"	.042 (No. 19)	.223 lbs.
1⅛"	.042 (No. 19)	.291			

ROUND RICH LOW BRASS TUBE

(85% Copper)

In 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot
1½"	.065 (No. 16)	1.370	1.11 lbs.	2"	.065 (No. 16)	1.870	1.50 lbs.

ROUND COMMERCIAL BRONZE TUBE

In Random 12- to 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot
¾"	.050 (No. 16 B&S)	.275	.198 lbs.	1½"	.065 (No. 16 SG)	1.370	1.12 lbs.
1/2"	.050 (No. 16 B&S)	.400	.276 lbs.	1¾"	.065 (No. 16 SG)	1.620	1.32 lbs.
5/8"	.050 (No. 16 B&S)	.525	.349 lbs.	2"	.065 (No. 16 SG)	1.870	1.51 lbs.
¾"	.050 (No. 16 B&S)	.650	.422 lbs.	2¼"	.065 (No. 16 SG)	2.120	1.71 lbs.
1"	.050 (No. 16 B&S)	.900	.567 lbs.	2½"	.065 (No. 16 SG)	2.370	1.91 lbs.
1¼"	.065 (No. 16 SG)	1.120	.930 lbs.	3"	.065 (No. 16 SG)	2.870	2.29 lbs.

ROUND AMBRAC (20% NICKEL) TUBE

In Random 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	I. D. Inches	APPROX. WT. Per Foot
1"	.049 (No. 18 SG)	.902	.579 lbs.	1½"	.049 (No. 18 SG)	1.402	.883 lbs.
1¼"	.049 (No. 18 SG)	1.152	.731 lbs.	2"	.050 (No. 16 B&S)	1.900	1.220 lbs.

Flaring Tools, Tube Cutters and Tube Benders are carried in stock. See Pages 220, 221 for description.

For Brass, Bronze and Copper Welding, Brazing or Soldering Materials, see **WELDING SECTION**.

BRASS
BRONZE
COPPER

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

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PARKER
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SARAN
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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

PIPE • TUBE • VALVES • FITTINGS



HARD SQUARE SEAMLESS BRASS TUBE

In Random 12- to 14-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Gauge	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	APPROX. WT. Per Foot
1/4" square	.025 (No. 22 B&S)	.08 lbs.	7/8" square	.025 (No. 22 B&S)	.32 lbs.
5/16" square	.025 (No. 22 B&S)	.11 lbs.		.042 (No. 19 SG)	.50 lbs.
3/8" square	.025 (No. 22 B&S)	.13 lbs.	1" square	.025 (No. 22 B&S)	.36 lbs.
	.042 (No. 19 SG)	.20 lbs.		.042 (No. 19 SG)	.57 lbs.
7/16" square	.042 (No. 19 SG)	.24 lbs.	1 1/4" square	.042 (No. 19 SG)	.72 lbs.
1/2" square	.042 (No. 19 SG)	.28 lbs.	1 1/2" square	.050 (No. 16 B&S)	1.08 lbs.
5/8" square	.042 (No. 19 SG)	.35 lbs.	2" square	.050 (No. 16 B&S)	1.45 lbs.
3/4" square	.025 (No. 22 B&S)	.27 lbs.			
	.042 (No. 19 SG)	.42 lbs.			

SQUARE RICH LOW BRASS TUBE

(85% Copper)

In 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
3/8" square	.065 (No. 16 SG)	.30 lbs.	1 1/4" square	.065 (No. 16 SG)	1.17 lbs.
1/2" square	.065 (No. 16 SG)	.43 lbs.	1 1/2" square	.065 (No. 16 SG)	1.41 lbs.
5/8" square	.065 (No. 16 SG)	.55 lbs.	2" square	.065 (No. 16 SG)	1.91 lbs.
3/4" square	.065 (No. 16 SG)	.68 lbs.	2 1/2" square	.065 (No. 16 SG)	2.40 lbs.
1" square	.065 (No. 16 SG)	.92 lbs.	3" square	.065 (No. 16 SG)	2.89 lbs.

SQUARE COMMERCIAL BRONZE TUBE

In Random 12- to 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
3/8" square	.065 (No. 16 SG)	.33 lbs.	1 1/2" square	.065 (No. 16 SG)	1.41 lbs.
1/2" square	.065 (No. 16 SG)	.43 lbs.	1 3/4" square	.065 (No. 16 SG)	1.65 lbs.
5/8" square	.065 (No. 16 SG)	.55 lbs.	2" square	.065 (No. 16 SG)	1.91 lbs.
3/4" square	.065 (No. 16 SG)	.67 lbs.	2 1/2" square	.065 (No. 16 SG)	2.50 lbs.
1" square	.065 (No. 16 SG)	.92 lbs.	3" square	.065 (No. 16 SG)	2.88 lbs.
1 1/4" square	.065 (No. 16 SG)	1.16 lbs.			

SQUARE *AMBRAC (20% NICKEL) TUBE

In Random 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
1/2" square	.032 (No. 21 SG)	.23 lbs.	1 1/4" square	.042 (No. 19 SG)	.80 lbs.
1" square	.042 (No. 19 SG)	.65 lbs.			

*Trade-mark Reg. U. S. Patent Office.

HARD RECTANGULAR SEAMLESS BRASS TUBE

In Random 12- to 14-Foot Lengths

O. D. Inches	WALL THICKNESS Inches Gauge	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Gauge	APPROX. WT. Per Foot
1/4" x 1/2"	.042 (No. 19 SG)	.21 lbs.	1/2" x 3/4"	.050 (No. 16 B&S)	.43 lbs.
3/16" x 5/8"	.042 (No. 19 SG)	.27 lbs.	x 1"	.050 (No. 16 B&S)	.52 lbs.
3/8" x 3/4"	.042 (No. 19 SG)	.32 lbs.	5/8" x 1 1/4"	.050 (No. 16 B&S)	.66 lbs.
x 1"	.042 (No. 19 SG)	.40 lbs.	3/4" x 1 1/2"	.064 (No. 14 B&S)	1.00 lbs.
x 2"	.042 (No. 19 SG)	.69 lbs.			

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

PIPE • TUBE • VALVES • FITTINGS

RECTANGULAR RICH LOW BRASS TUBE

(85% Copper)

In 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	STUBS GA.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	STUBS GA.	APPROX. WT. Per Foot
3/8" x 3/8"	.065	(No. 16 SG)	.43 lbs.	3/4" x 1"	.065	(No. 16 SG)	.78 lbs.
x 3/4"	.065	(No. 16 SG)	.49 lbs.	x 1 1/2"	.065	(No. 16 SG)	1.04 lbs.
x 1"	.065	(No. 16 SG)	.62 lbs.	x 2"	.065	(No. 16 SG)	1.27 lbs.
x 1 1/4"	.065	(No. 16 SG)	.74 lbs.	1" x 1 1/2"	.083	(No. 14 SG)	1.47 lbs.
1/2" x 1"	.065	(No. 16 SG)	.67 lbs.	x 2"	.065	(No. 16 SG)	1.41 lbs.
x 1 1/4"	.065	(No. 16 SG)	.81 lbs.	1 1/4" x 2 1/2"	.083	(No. 14 SG)	2.22 lbs.
x 1 1/2"	.065	(No. 16 SG)	.92 lbs.	x 3"	.083	(No. 14 SG)	2.51 lbs.
x 2"	.065	(No. 16 SG)	1.16 lbs.	1 1/2" x 3"	.083	(No. 14 SG)	2.73 lbs.
5/8" x 1 1/4"	.065	(No. 16 SG)	.87 lbs.	x 4"	.083	(No. 14 SG)	3.28 lbs.
				*1 3/4" x 4"	.083	(No. 14 SG)	3.43 lbs.

*Also carried in 10-foot lengths.

RECTANGULAR COMMERCIAL BRONZE TUBE

In Random 12- to 15-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	STUBS GA.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	STUBS GA.	APPROX. WT. Per Foot
3/8" x 3/4"	.065	(No. 16 SG)	.50 lbs.	1/2" x 1 1/4"	.065	(No. 16 SG)	.80 lbs.
x 1"	.065	(No. 16 SG)	.62 lbs.	3/8" x 1 1/4"	.065	(No. 16 SG)	.86 lbs.
x 1 1/4"	.065	(No. 16 SG)	.74 lbs.	3/4" x 1 1/2"	.065	(No. 16 SG)	1.09 lbs.
1/2" x 3/4"	.065	(No. 16 SG)	.56 lbs.	1" x 2"	.065	(No. 16 SG)	1.42 lbs.
x 1"	.065	(No. 16 SG)	.69 lbs.	1 1/2" x 3"	.065	(No. 16 SG)	2.16 lbs.

Rectangular Ambrac (20% Nickel) Tubes—shipment from mill.

SEAMLESS RED BRASS PIPE

Semi-annealed

(Anaconda *85)

In 12-Foot Lengths

STANDARD PIPE SIZES

STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.281	.062	.26 lbs.	2"	2.375	2.062	.156	4.14 lbs.
1/4"	.540	.376	.082	.45 lbs.	2 1/2"	2.875	2.500	.187	6.00 lbs.
3/8"	.675	.495	.090	.63 lbs.	3"	3.500	3.062	.219	8.56 lbs.
1/2"	.840	.626	.107	.94 lbs.	3 1/2"	4.000	3.500	.250	11.17 lbs.
3/4"	1.050	.822	.114	1.27 lbs.	4"	4.500	4.000	.250	12.66 lbs.
1"	1.315	1.063	.126	1.80 lbs.	5"	5.563	5.062	.250	15.85 lbs.
1 1/4"	1.660	1.368	.146	2.63 lbs.	6"	6.625	6.125	.250	18.99 lbs.
1 1/2"	1.900	1.600	.150	3.13 lbs.					

EXTRA HEAVY SIZES

EX. HVY. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	EX. HVY. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/4"	.540	.294	.123	.61 lbs.	1 1/4"	1.660	1.272	.194	3.39 lbs.
3/8"	.675	.421	.127	.83 lbs.	1 1/2"	1.900	1.494	.203	4.11 lbs.
1/2"	.840	.542	.149	1.23 lbs.	2"	2.375	1.933	.221	5.67 lbs.
3/4"	1.050	.736	.157	1.67 lbs.	2 1/2"	2.875	2.315	.280	8.66 lbs.
1"	1.315	.951	.182	2.46 lbs.	3"	3.500	2.892	.304	11.57 lbs.

*Trade-mark "85" Reg. U. S. Patent Office.

Round Ambrac (20% Nickel) Pipe—shipment from mill.

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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BRONZE
COPPER

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PIPE • TUBE • VALVES • FITTINGS



SEAMLESS EVERDUR (1010) PIPE

In Exact 12-Foot Lengths
Standard Pipe Sizes

STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/2"	.840	.625	.107	.91 lbs.	1 1/4"	1.660	1.368	.146	2.57 lbs.
3/4"	1.050	.822	.114	1.24 lbs.	1 1/2"	1.900	1.600	.150	3.05 lbs.
1"	1.315	1.062	.126	1.75 lbs.	2"	2.375	2.062	.156	4.03 lbs.

BRASS OR EVERDUR PIPE FITTINGS

Prompt Shipment

Standard Pipe Sizes in Forms of

90° Elbows	Lock Nuts	Caps	Unions
45° Elbows	Reducers	Plugs	Return Bends
Street Ells	Bushings	Nipples	Gate Valves
Couplings	Crosses	Close Nipples	Globe Valves

COPPER

HARD DRAWN ROUND SEAMLESS COPPER TUBE

Outside Diameter Sizes
In 12-Foot Lengths

O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	Stubbs Ga.	I. D. Inches	APPROX. WT. Per Foot
3/16"	.032	(No. 21)	.123	.061 lbs.	1 1/2"	.065	(No. 16)	1.370	1.136 lbs.
1/4"	.032	(No. 21)	.186	.085 lbs.		.083	(No. 14)	1.334	1.432 lbs.
	.035	(No. 20)	.180	.092 lbs.	1 3/8"	.083	(No. 14)	1.459	1.605 lbs.
5/16"	.035	(No. 20)	.242	.118 lbs.	1 3/4"	.095	(No. 13)	1.560	1.915 lbs.
3/8"	.032	(No. 21)	.311	.134 lbs.	2"	.065	(No. 16)	1.870	1.532 lbs.
	.042	(No. 19)	.291	.170 lbs.		.083	(No. 14)	1.834	1.937 lbs.
7/16"	.042	(No. 19)	.353	.202 lbs.	2 1/2"	.065	(No. 16)	2.370	1.927 lbs.
1/2"	.049	(No. 18)	.402	.269 lbs.		.109	(No. 12)	2.282	3.174 lbs.
5/8"	.049	(No. 18)	.527	.344 lbs.	3"	.083	(No. 14)	2.834	2.948 lbs.
3/4"	.058	(No. 17)	.634	.489 lbs.	3 1/2"	.083	(No. 14)	3.334	3.453 lbs.
7/8"	.058	(No. 17)	.759	.577 lbs.	4"	.083	(No. 14)	3.834	3.959 lbs.
1"	.035	(No. 20)	.930	.411 lbs.		.134	(No. 10)	3.732	6.308 lbs.
	.065	(No. 16)	.870	.740 lbs.	4 1/2"	.134	(No. 10)	4.232	7.124 lbs.
1 1/8"	.065	(No. 16)	.995	.839 lbs.	5"	.065	(No. 16)	4.870	3.906 lbs.
1 1/4"	.072	(No. 15)	1.106	1.033 lbs.		.109	(No. 12)	4.782	6.492 lbs.
					6"	.134	(No. 10)	5.732	9.571 lbs.

In 20-Foot Lengths

3/8"	.062	(1/16")	1/4"	.237 lbs.	3/4"	.062	(1/16")	3/8"	.521 lbs.
1/2"	.062	(1/16")	3/8"	.332 lbs.		.093	(3/32")	1/2"	.746 lbs.
	.125	(1/8")	1/4"	.568 lbs.	1 1/4"	.125	(1/8")	1"	1.710 lbs.
5/8"	.062	(1/16")	1/2"	.426 lbs.					

(Continued on next page)

For Brass, Bronze and Copper Welding, Brazing or Soldering Materials, see **WELDING SECTION.**

PIPE • TUBE • VALVES • FITTINGS

HARD DRAWN ROUND SEAMLESS COPPER TUBE—Continued

Inside Diameter Sizes

In 20-Foot Lengths

I. D. Inches	WALL THICKNESS Inches Stubs Ga.	O. D. Inches	APPROX. WT. Per Foot	I. D. Inches	WALL THICKNESS Inches Stubs Ga.	O. D. Inches	APPROX. WT. Per Foot
1 1/4"	.109 (No. 12) .134 (No. 10)	1.468 1.518	1.80 lbs. 2.26 lbs.	*4"	.083 (No. 14) .109 (No. 12) .134 (No. 10) .165 (No. 8)	4.166 4.218 4.268 4.330	4.13 lbs. 5.45 lbs. 6.75 lbs. 8.37 lbs.
1 1/2"	.065 (No. 16) .083 (No. 14) .109 (No. 12) .134 (No. 10)	1.630 1.666 1.718 1.768	1.24 lbs. 1.60 lbs. 2.14 lbs. 2.67 lbs.	4 1/2"	.134 (No. 10)	4.768	7.56 lbs.
2"	.065 (No. 16) .083 (No. 14) .109 (No. 12) .134 (No. 10) .165 (No. 8)	2.130 2.166 2.218 2.268 2.330	1.63 lbs. 2.11 lbs. 2.80 lbs. 3.48 lbs. 4.35 lbs.	*5"	.134 (No. 10) .165 (No. 8) .259 (No. 3)	5.268 5.330 5.518	8.38 lbs. 10.38 lbs. 16.58 lbs.
2 1/2"	.109 (No. 12) .134 (No. 10) .165 (No. 8)	2.718 2.768 2.830	3.46 lbs. 4.30 lbs. 5.35 lbs.	6"	.083 (No. 14) .109 (No. 12) .134 (No. 10) .165 (No. 8) .220 (No. 5) .259 (No. 3)	6.166 6.218 6.268 6.330 6.440 6.518	6.15 lbs. 8.11 lbs. 10.01 lbs. 12.38 lbs. 16.66 lbs. 19.74 lbs.
3"	.065 (No. 16) .083 (No. 14) .109 (No. 12) .134 (No. 10) .165 (No. 8)	3.130 3.166 3.218 3.268 3.330	2.43 lbs. 3.12 lbs. 4.13 lbs. 5.11 lbs. 6.36 lbs.	*7"	.109 (No. 12) .134 (No. 10)	7.218 7.268	9.44 lbs. 11.64 lbs.
3 1/2"	.109 (No. 12) .134 (No. 10) .165 (No. 8)	3.718 3.768 3.830	4.79 lbs. 5.93 lbs. 7.36 lbs.	*8"	.109 (No. 12) .134 (No. 10) .165 (No. 8)	8.218 8.268 8.330	10.76 lbs. 13.27 lbs. 16.40 lbs.
				9"	.134 (No. 10)	9.268	14.91 lbs.
				10"	.134 (No. 10) .165 (No. 8)	10.268 10.330	16.54 lbs. 20.42 lbs.

*Carried in 12-foot and 20-foot lengths.

SOFT SEAMLESS COPPER TUBE

For Automotive and Industrial Fluid Lines

In About 50-Foot Coils

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot
1/8"	.032 (No. 21)	.061	.036 lbs.	5/8"	.042 (No. 19)	.541	.298 lbs.
3/16"	.032 (No. 21)	.123	.061 lbs.	3/4"	.042 (No. 19)	.666	.362 lbs.
1/4"	.032 (No. 21)	.186	.085 lbs.	1"	.042 (No. 19)	.916	.490 lbs.
5/16"	.032 (No. 21)	.248	.110 lbs.	1 1/4"	.049 (No. 18)	1.152	.717 lbs.
3/8"	.035 (No. 20)	.305	.145 lbs.	1 1/2"	.058 (No. 17)	1.384	1.020 lbs.
1/2"	.035 (No. 20)	.430	.198 lbs.				

SOFT SEAMLESS COPPER TUBE

Dehydrated and Sealed For Refrigeration Installation

In 50-Foot Coils

O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Coil	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Coil
1/8"	.030	1.74 lbs.	3/8"	.032	6.70 lbs.
3/16"	.030	2.88 lbs.	1/2"	.032	9.10 lbs.
1/4"	.030	4.02 lbs.	5/8"	.035	12.55 lbs.
5/16"	.032	5.45 lbs.	3/4"	.035	15.25 lbs.

SOFT COPPER OIL BURNER TUBE

In 50-Foot Coils

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	APPROX. WT. Per Foot
5/16"	.049 (No. 18 SG)	.159 lbs.	1/2"	.049 (No. 18 SG)	.269 lbs.
3/8"	.049 (No. 18 SG)	.195 lbs.	5/8"	.049 (No. 18 SG)	.344 lbs.

Tube Flaring and Tube Bending Tools are carried in stock. For description, see Pages 220, 221.

For a comparison of the properties and qualities of different Anaconda Copper alloys, consult chart on pages 6 and 7.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

BRASS
BRONZE
COPPER

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS
121-
127

PARKER
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SARAN
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PIPE • TUBE • VALVES • FITTINGS



COPPER WATER TUBE

Deoxidized

For Plumbing—Heating—Gas and Oil Lines

Type "K"

Soft—In 60-Foot Coils

For Underground Service and Interior Plumbing

Also Suitable for Gas, Steam and Oil Lines and Industrial Purposes

NOM. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	NOM. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
3/8	.500	.402	.049	.269 lbs.	1	1.125	.995	.065	.839 lbs.
1/2	.625	.527	.049	.344 lbs.	1 1/4	1.375	1.245	.065	1.037 lbs.
5/8	.750	.652	.049	.418 lbs.	1 1/2	1.625	1.481	.072	1.362 lbs.
3/4	.875	.745	.065	.641 lbs.					

Type "L"

For General Plumbing Purposes

Soft—In 60-Foot Coils

NOM. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	NOM. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
3/8	.500	.430	.035	.198 lbs.	3/4	.875	.785	.045	.455 lbs.
1/2	.625	.545	.040	.285 lbs.	1	1.125	1.025	.050	.655 lbs.
5/8	.750	.666	.042	.362 lbs.	1 1/2	1.625	1.505	.060	1.140 lbs.

HARD DRAWN SEAMLESS COPPER PIPE

Deoxidized

In 12-Foot Lengths

Standard Pipe Sizes

STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	STD. I.P.S. SIZE	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.281	.062	.26 lbs.	1 1/2"	1.900	1.600	.150	3.20 lbs.
1/4"	.540	.375	.082	.46 lbs.	2"	2.375	2.062	.156	4.23 lbs.
3/8"	.675	.494	.090	.65 lbs.	2 1/2"	2.875	2.500	.187	6.14 lbs.
1/2"	.840	.625	.107	.96 lbs.	3"	3.500	3.062	.219	8.75 lbs.
3/4"	1.050	.822	.114	1.30 lbs.	3 1/2"	4.000	3.500	.250	11.42 lbs.
1"	1.315	1.062	.126	1.83 lbs.	4"	4.500	4.000	.250	12.94 lbs.
1 1/4"	1.660	1.368	.146	2.69 lbs.	6"	6.625	6.125	.250	19.41 lbs.

CAST BRONZE—WROUGHT COPPER

TUBE FITTINGS

Solder and Flared Types

For Standard Sizes of Copper Tube

Prompt Shipment

90° Elbows	90° Drop Ear Elbows	Flanged Unions	Angle Stop Valves
Couplings	Adapters	Tube End Caps	Angle Stop and Waste Valves
Bushings	Drop Ear Tees	Flanged Elbows	Bulkhead Fittings
45° Elbows	Unions	Globe Stop Valves	Return Bends
Eccentric Couplings	Fitting End Plugs	Stop and Waste Valves	Flanges
Tees	Crosses	Gate Valves	Expansion Joints

Range Boiler Couplings and Elbows

Complete stocks of Brass, Bronze and Copper Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION.**



PIPE • TUBE • VALVES • FITTINGS

INDEX—MONEL • NICKEL • INCONEL • PIPE • TUBE • ETC.

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NICKEL

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INCONEL

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In tubular form the Inco Nickel alloy family of metals is available in a complete range of size in seamless and welded form to provide an answer to most corrosion and mechanical problems. Fittings, valves, and other components of tube and pipe lines also are readily supplied. Guides to the selection of the most suitable Nickel alloy and temper precede the listing of standard sizes in this section. A metal comparison chart appears on Pages 8 and 9.

MONEL

As the general purpose alloy of the Nickel alloy family of metals, Monel finds wide acceptance for such diverse uses as condenser tubes, chemical and process piping and valve parts, and its silvery white appearance, strength, and formability account for its increased use for jewelry parts, sporting goods and a host of other purposes. The non-magnetic "K" Monel alloy provides extra strength and hardness such as required, for example, for shaft sleeves, and is supplied in age-hardened temper as well as soft and commercially as drawn for subsequent hardening.

Temper suggestions applicable to regular Monel (other than condenser tubes): Tubes and pipe to be coiled, flanged, van stoned, bent cold, or welded or silver brazed, specify annealed. For close tolerance machining, order hard stress relieved. Simple machine work, such as standard threading, can be done with stress equalized temper tube or pipe.

BUNDYWELD MONEL TUBE

100-Foot Coils or Random Straight Lengths

O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.028	.033 lbs.	1/4"	.028	.075 lbs.	3/8"	.028	.117 lbs.	1/2"	.028	.159 lbs.
3/16"	.028	.054 lbs.	5/16"	.028	.096 lbs.	7/16"	.028	.138 lbs.	5/8"	.028	.201 lbs.

Above items from mill only.

Complete stocks of Monel and Nickel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

FASTENERS

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

STAINLESS
121-
127

PARKER
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SARAN
143-
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PIPE • TUBE • VALVES • FITTINGS



COLD DRAWN SEAMLESS MONEL TUBE

O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches Stubs Ga.	I. D. Inches	APPROX. WT. Per Foot
1/4"	.035 (No. 20)	.180	.09 lbs.	1"	.035 (No. 20)	.930	.41 lbs.
5/16"	.035 (No. 20)	.292	.12 lbs.		.065 (No. 16)	.870	.73 lbs.
3/8"	.035 (No. 20)	.305	.14 lbs.		.083 (No. 14)	.834	.91 lbs.
3/8"	.065 (No. 16)	.245	.25 lbs.	1 1/4"	.065 (No. 16)	1.120	.93 lbs.
1/2"	.035 (No. 20)	.430	.20 lbs.	1 1/2"	.035 (No. 20)	1.430	.62 lbs.
	.042 (No. 19)	.416	.23 lbs.		.065 (No. 16)	1.370	1.12 lbs.
	.065 (No. 16)	.370	.34 lbs.	1 3/4"	.065 (No. 16)	1.620	1.32 lbs.
5/8"	.049 (No. 18)	.527	.34 lbs.	2"	.065 (No. 16)	1.870	1.51 lbs.
3/4"	.035 (No. 20)	.680	.30 lbs.		.083 (No. 14)	1.834	1.91 lbs.
	.065 (No. 16)	.620	.53 lbs.	2 1/4"	.065 (No. 16)	2.120	1.71 lbs.
7/8"	.035 (No. 20)	.805	.35 lbs.	2 1/2"	.083 (No. 14)	2.334	2.41 lbs.
	.065 (No. 16)	.745	.63 lbs.	3"	.083 (No. 14)	2.834	2.91 lbs.

Cold Drawn Seamless Monel Tubing available for mill delivery in sizes from .012" O. D. with .002" wall through 9 1/4" O. D. with 5/8" wall (over 8 1/4" O. D. is extruded only). Manufactured with average wall for general service or with minimum wall for high pressure use. Tempers to suit application.

WELDED MONEL TUBE

Mill Delivery

Sizes from .012" O. D. with .002" Wall to 30" O. D. with 1/4" Wall and heavier. Weld bead removed or reduced by drawing, swaging or grinding, depending upon size.

Monel No. 35 Sheet or Cold Rolled Sheet is frequently formed into tube and welded to produce large diameter tubing for uses such as paper mill stock lines.

MONEL CONDENSER TUBE

(For Condensers, Evaporators and Heat Exchangers)

Mill Delivery

Seamless tubes with average wall thickness produced in sizes from 5/8" O. D. to 3" O. D. in increments of 1/8" with wall thickness from .049" through .165" (No. 18 Stubs gauge through No. 8). Minimum wall tubes supplied 5/8" O. D. to 3" O. D. with wall from .042" to .148" (No. 19 Stubs gauge through No. 9).

Other sizes and walls subject to request.

All condenser tube is controlled in production to insure adequate ductility and the ends are given upset flaring tests. Supplied in choice of annealed temper or stress relieved or stress relieved with ends annealed.

Ask for detailed information on this product.

COLD DRAWN SEAMLESS MONEL PIPE

Annealed

In Random 6- to 16-Foot Lengths

STANDARD IRON PIPE SIZES (SCHEDULE 40)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.269	.068	.276 lbs.	2"	2.375	2.067	.154	4.110 lbs.
1/4"	.540	.364	.088	.478 lbs.	2 1/2"	2.875	2.469	.203	6.520 lbs.
3/8"	.675	.493	.091	.639 lbs.	3"	3.500	3.068	.216	8.530 lbs.
1/2"	.840	.622	.109	.958 lbs.	3 1/2"	4.000	3.548	.226	10.300 lbs.
3/4"	1.050	.824	.113	1.270 lbs.	4"	4.500	4.026	.237	12.100 lbs.
1"	1.315	1.049	.133	1.890 lbs.	5"	5.563	5.047	.258	16.400 lbs.
1 1/4"	1.660	1.380	.140	2.560 lbs.	6"	6.625	6.065	.280	21.400 lbs.
1 1/2"	1.900	1.610	.145	3.060 lbs.	8"	8.625	7.981	.322	32.200 lbs.

(Continued on next page)

Sizes listed in bold type are stock items, other sizes are standard and promptly available from mill.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.



PIPE • TUBE • VALVES • FITTINGS

COLD DRAWN SEAMLESS MONEL PIPE—Continued

LIGHT WEIGHT IRON PIPE SIZES (SCHEDULE 10)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.307	.049	.210 lbs.	2"	2.375	2.157	.109	2.970 lbs.
1/4"	.540	.410	.065	.371 lbs.	2 1/2"	2.875	2.635	.120	3.980 lbs.
3/8"	.675	.545	.065	.477 lbs.	3"	3.500	3.260	.120	4.880 lbs.
1/2"	.840	.674	.083	.756 lbs.	3 1/2"	4.000	3.760	.120	5.600 lbs.
3/4"	1.050	.884	.083	.965 lbs.	4"	4.500	4.260	.120	6.320 lbs.
1"	1.315	1.097	.109	1.580 lbs.	5"	5.563	5.295	.134	8.750 lbs.
1 1/4"	1.660	1.442	.109	2.030 lbs.	6"	6.625	6.357	.134	10.450 lbs.
1 1/2"	1.900	1.682	.109	2.350 lbs.					

EXTRA HEAVY IRON PIPE SIZES (SCHEDULE 80)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.215	.095	.354 lbs.	2"	2.375	1.939	.218	5.660 lbs.
1/4"	.540	.302	.119	.603 lbs.	2 1/2"	2.875	2.323	.276	8.630 lbs.
3/8"	.675	.423	.126	.832 lbs.	3"	3.500	2.900	.300	11.500 lbs.
1/2"	.840	.546	.147	1.230 lbs.	3 1/2"	4.000	3.364	.318	14.100 lbs.
3/4"	1.050	.742	.154	1.660 lbs.	4"	4.500	3.826	.337	16.900 lbs.
1"	1.315	.957	.179	2.450 lbs.	5"	5.563	4.813	.375	23.400 lbs.
1 1/4"	1.660	1.278	.191	3.370 lbs.	6"	6.625	5.761	.432	32.200 lbs.
1 1/2"	1.900	1.500	.200	4.090 lbs.	8"	8.625	7.625	.500	48.900 lbs.

Sizes listed in bold type are stock items, other sizes listed are standard and promptly available from mill.

"K" MONEL PIPE AND TUBE

Mill Delivery

High strength coupled with corrosion resistance. Non-magnetic, heat treatable. Ideal for such applications as bourdon tubes.

Standard iron pipe sizes (Schedule 40) 1/4" to 2 1/2" inclusive.

Extra heavy iron pipe sizes (Schedule 80) 3/8" to 2 1/2" inclusive.

O. D. tube sizes from .012" O. D. x .002" Wall to 3 1/4" O. D. with 5/8" Wall (over 3 1/4" O. D. is extruded only).

NICKEL

Commercially pure Nickel in tubular form frequently is used to protect product purity in addition to the corrosion resistance it affords. Low Carbon Nickel is softer than regular Nickel and is often preferred for beverage tubing or for spinning operations. Also for fused caustic and fused salts and for temperatures above 600° F.

Temper suggestions same as preceding reference for Monel.

BUNDYWELD "L" NICKEL TUBE

Soft Temper in 100-Foot Coils

O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
*3/8"	.028	.054 lbs.	3/8"	.028	.097 lbs.	7/8"	.028	.139 lbs.	*3/8"	.028	.202 lbs.
1/4"	.028	.075 lbs.	3/8"	.028	.118 lbs.	1/2"	.028	.160 lbs.			

*From mill only. All others standard stock items.

Bundyweld "L" Nickel Tube is a commercially pure Nickel Tube soft annealed to allow forming by hand and can be flared for use with standard flare fittings. It is highly recommended for use as beer lines.

Complete stocks of Monel and Nickel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

FASTENERS

WELDING AND BRAZING

SPECIAL PRODUCTS

MONEL
NICKEL
INCONEL

STAINLESS
121-
127

PARKER
FITTINGS
128-
142

SARAN
143-
145

PIPE • TUBE • VALVES • FITTINGS



COLD DRAWN SEAMLESS NICKEL TUBE

Sizes from .012" O.D. with .002" Wall through 9 1/4" O.D. with 5/8" Wall (over 8 1/4" O.D. is extruded only). Manufactured with Average Wall for general service or with Minimum Wall for high pressure use. Tempers to suit application.

The following sizes are normally carried in our mill stock.

O. D. Inches	WALL THICKNESS		I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS		I. D. Inches	APPROX. WT. Per Foot
	Inches	Stubs Ga.				Inches	Stubs Ga.		
1/2"	.035	(No. 20)	.430	.20 lbs.	7/8"	.065	(No. 16)	.745	.63 lbs.
	.042	(No. 19)	.416	.23 lbs.	1"	.035	(No. 20)	.930	.41 lbs.
	.065	(No. 16)	.370	.34 lbs.		.049	(No. 19)	.902	.56 lbs.
5/8"	.035	(No. 20)	.555	.25 lbs.		.065	(No. 16)	.870	.73 lbs.
	.042	(No. 19)	.541	.29 lbs.	1 1/4"	.065	(No. 16)	1.120	.93 lbs.
	.065	(No. 16)	.495	.44 lbs.	1 1/2"	.065	(No. 16)	1.370	1.12 lbs.
3/4"	.035	(No. 20)	.680	.30 lbs.	1 3/4"	.065	(No. 16)	1.620	1.32 lbs.
	.049	(No. 19)	.652	.41 lbs.	2"	.065	(No. 16)	1.870	1.51 lbs.
	.065	(No. 16)	.620	.53 lbs.		.083	(No. 14)	1.834	1.91 lbs.
7/8"	.035	(No. 20)	.805	.35 lbs.					

NICKEL AND LOW CARBON NICKEL CONDENSER TUBE

(For Condenser, Heat Exchanger and Evaporator Service)

Mill Delivery

Seamless tubes with average wall thickness produced in sizes from 5/8" O.D. to 3" O.D. in increments of 1/8" with wall thicknesses from .049" through .165" (No. 18 Stubs gauge through No. 8). Minimum wall tubes supplied 5/8" O.D. to 3" O.D. with wall from .042" to .148" (No. 19 Stubs gauge through No. 9).

Other sizes and walls subject to request.

All condenser tube is controlled in production to insure adequate ductility and the ends are given upset flaring tests. Supplied in choice of annealed temper or stress relieved or stress relieved with ends annealed.

Ask for detailed information on this product.

COLD DRAWN SEAMLESS "A" NICKEL PIPE AND LOW CARBON NICKEL PIPE

Annealed

In Random 6- to 16-Foot Lengths

STANDARD IRON PIPE SIZES (SCHEDULE 40)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.269	.068	.277 lbs.	2"	2.375	2.067	.154	4.140 lbs.
1/4"	.540	.364	.088	.481 lbs.	2 1/2"	2.875	2.469	.203	6.560 lbs.
3/8"	.675	.493	.091	.643 lbs.	3"	3.500	3.068	.216	8.580 lbs.
1/2"	.840	.622	.109	.964 lbs.	3 1/2"	4.000	3.548	.226	10.300 lbs.
3/4"	1.050	.824	.113	1.280 lbs.	4"	4.500	4.026	.237	12.200 lbs.
1"	1.315	1.049	.133	1.900 lbs.	5"	5.563	5.047	.258	16.600 lbs.
1 1/4"	1.660	1.380	.140	2.580 lbs.	6"	6.625	6.065	.280	21.500 lbs.
1 1/2"	1.900	1.610	.145	3.080 lbs.	8"	8.625	7.981	.322	32.400 lbs.

LIGHT WEIGHT IRON PIPE SIZES (SCHEDULE 10)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.307	.049	.211 lbs.	2"	2.375	2.157	.109	2.990 lbs.
1/4"	.540	.410	.065	.374 lbs.	2 1/2"	2.875	2.635	.120	4.000 lbs.
3/8"	.675	.545	.065	.480 lbs.	3"	3.500	3.260	.120	4.910 lbs.
1/2"	.840	.674	.083	.760 lbs.	3 1/2"	4.000	3.760	.120	5.630 lbs.
3/4"	1.050	.884	.083	.971 lbs.	4"	4.500	4.260	.120	6.360 lbs.
1"	1.315	1.097	.109	1.590 lbs.	5"	5.563	5.295	.134	8.800 lbs.
1 1/4"	1.660	1.442	.109	2.050 lbs.	6"	6.625	6.357	.134	10.500 lbs.
1 1/2"	1.900	1.682	.109	2.360 lbs.					

(Continued on next page)

Sizes listed in bold type are stock items carried in "A" Nickel only, other sizes listed are standard and promptly available from mill.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.



PIPE • TUBE • VALVES • FITTINGS

COLD DRAWN SEAMLESS "A" NICKEL PIPE AND LOW CARBON NICKEL PIPE —Continued

EXTRA HEAVY IRON PIPE SIZES (SCHEDULE 80)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.215	.095	.356 lbs.	2"	2.375	1.939	.218	5.690 lbs.
1/4"	.540	.302	.119	.606 lbs.	2 1/2"	2.875	2.323	.276	8.680 lbs.
3/8"	.675	.423	.126	.837 lbs.	3"	3.500	2.900	.300	11.600 lbs.
1/2"	.840	.546	.147	1.240 lbs.	3 1/2"	4.000	3.364	.318	14.200 lbs.
3/4"	1.050	.742	.154	1.670 lbs.	4"	4.500	3.826	.337	17.000 lbs.
1"	1.315	.957	.179	2.460 lbs.	5"	5.563	4.813	.375	23.500 lbs.
1 1/4"	1.660	1.278	.191	3.400 lbs.	6"	6.625	5.761	.432	32.400 lbs.
1 1/2"	1.900	1.500	.200	4.120 lbs.	8"	8.625	7.625	.500	49.200 lbs.

Above items available promptly from mill.

INCONEL

Exceptional chemical corrosion-resistance of this high Nickel (80%), Chromium (14%) alloy plus its strength and resistance to scaling at elevated temperatures account for the major applications of Inconel. Furnace and heat treating uses include thermocouple protection tubes, furnace tubes, etc. All tube and pipe is supplied in soft temper.

COLD DRAWN SEAMLESS OR WELDED INCONEL TUBE

Mill Delivery

Seamless from .012" O.D. x .002" Wall through 8 1/2" O.D. x 5/8" Wall. Random 5- to 20-foot lengths, or exact lengths when specified.

Welded from .012" O.D. x .002" Wall through 30" O.D. with 1/4" Wall and heavier.

Manufactured with Average Wall for general service or with Minimum Wall (no thinner than specified) for high pressure use.

Temper to suit application.

INCONEL CONDENSER TUBE

(For Condenser, Heat Exchanger and Evaporator Service)

Seamless tubes with average wall are produced in sizes from 5/8" O.D. through 3" O.D. in increments of 1/8". 3/4" O.D. and larger in wall thicknesses from .049" (No. 18 Stubs gauge) through .165" (No. 8 Stubs). 5/8" O.D. only from .049" through .120" (No. 11 Stubs).

Minimum wall tubes from 5/8" O.D. through 3" O.D. in increments of 1/8" with wall thicknesses on 5/8" O.D. from .042" through .109" and range on larger sizes from .042" wall through .148" wall.

All tubes supplied annealed.

COLD DRAWN SEAMLESS INCONEL PIPE

Annealed

In Random 6- to 16-Foot Lengths

STANDARD IRON PIPE SIZES (SCHEDULE 40)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/4"	.540	.364	.088	.460 lbs.	2"	2.375	2.067	.154	3.960 lbs.
3/8"	.675	.493	.091	.615 lbs.	2 1/2"	2.875	2.469	.203	6.280 lbs.
1/2"	.840	.622	.109	.922 lbs.	3"	3.500	3.068	.216	8.210 lbs.
3/4"	1.050	.824	.113	1.230 lbs.	3 1/2"	4.000	3.548	.226	9.870 lbs.
1"	1.315	1.049	.133	1.820 lbs.	4"	4.500	4.026	.237	11.700 lbs.
1 1/4"	1.660	1.380	.140	2.460 lbs.	5"	5.563	5.047	.258	15.800 lbs.
1 1/2"	1.900	1.610	.145	2.950 lbs.	6"	6.625	6.065	.280	20.600 lbs.

(Continued on next page)

Sizes listed in bold type are stock items. Other sizes listed are standard and promptly available from mill.

Complete stocks of Monel and Nickel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE AND MILL ITEMS

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NICKEL
INCONEL

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PIPE • TUBE • VALVES • FITTINGS



COLD DRAWN SEAMLESS INCONEL PIPE—Continued LIGHT WEIGHT IRON PIPE SIZES (SCHEDULE 10)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/4"	.540	.410	.065	.375 lbs.	1 1/2"	1.900	1.682	.109	2.260 lbs.
3/8"	.675	.545	.065	.459 lbs.	2"	2.375	2.157	.109	2.860 lbs.
1/2"	.840	.674	.083	.727 lbs.	2 1/2"	2.875	2.635	.120	3.830 lbs.
3/4"	1.050	.884	.083	.929 lbs.	3"	3.500	3.260	.120	4.690 lbs.
1"	1.315	1.097	.109	1.520 lbs.	3 1/2"	4.000	3.760	.120	5.390 lbs.
1 1/4"	1.660	1.442	.109	1.960 lbs.	4"	4.500	4.260	.120	6.080 lbs.

EXTRA HEAVY IRON PIPE SIZES (SCHEDULE 80)

SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
3/8"	.675	.423	.126	.801 lbs.	2"	2.375	1.939	.218	5.440 lbs.
1/2"	.840	.546	.147	1.180 lbs.	2 1/2"	2.875	2.323	.276	8.300 lbs.
3/4"	1.050	.742	.154	1.600 lbs.	3"	3.500	2.900	.300	11.100 lbs.
1"	1.315	.957	.179	2.350 lbs.	3 1/2"	4.000	3.364	.318	13.600 lbs.
1 1/4"	1.660	1.278	.191	3.250 lbs.	4"	4.500	3.826	.337	16.200 lbs.
1 1/2"	1.900	1.500	.200	3.940 lbs.					

Above items available promptly from mill.

FITTINGS AND VALVES

MONEL • NICKEL • INCONEL

CAST THREADED PIPE FITTINGS

Malleable Iron Pattern

Standard I. P. S. Sizes

Bold Faced Listings carried in stock. (M—Monel. N—Nickel. I—Inconel.)

Light Faced Listings available from mill. (M—Monel. N—Nickel. I—Inconel.)

I.P.S. SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
90° Elbows	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
45° Elbows	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Tees	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Crosses	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Caps	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Couplings	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Plugs	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
Ground Joint Unions	MN	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI
*Companion Flanges	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI	MNI

*Available up to 6" I.P.S.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.



PIPE • TUBE • VALVES • FITTINGS

NIPPLES: Stocked in all sizes in Monel, Nickel and Inconel.

BUSHINGS: (Sizes carried in stock.)

MONEL	$\frac{3}{8}$ " x $\frac{1}{4}$ "	$\frac{1}{2}$ " x $\frac{3}{8}$ "	1" x $\frac{1}{2}$ "	$1\frac{1}{4}$ " x 1"	$1\frac{1}{2}$ " x $1\frac{1}{4}$ "	2" x $1\frac{1}{2}$ "
	$\frac{1}{2}$ " x $\frac{1}{4}$ "	$\frac{3}{4}$ " x $\frac{1}{2}$ "	1" x $\frac{3}{4}$ "	$1\frac{1}{2}$ " x 1"	2" x 1"	
NICKEL	$\frac{1}{4}$ " x $\frac{1}{8}$ "	$\frac{1}{2}$ " x $\frac{3}{8}$ "	1" x $\frac{3}{4}$ "	2" x $\frac{3}{4}$ "	$2\frac{1}{2}$ " x $1\frac{1}{2}$ "	4" x 3"
	$\frac{3}{8}$ " x $\frac{1}{4}$ "	$\frac{3}{4}$ " x $\frac{1}{2}$ "	$1\frac{1}{4}$ " x 1"	2" x 1"	$2\frac{1}{2}$ " x 2"	4" x $3\frac{1}{2}$ "
	$\frac{1}{2}$ " x $\frac{1}{4}$ "	1" x $\frac{1}{2}$ "	$1\frac{1}{2}$ " x 1"	2" x $1\frac{1}{2}$ "	3" x $2\frac{1}{2}$ "	

INCONEL BUSHINGS and other sizes of Monel and Nickel Bushings are available from mill.

MONEL, NICKEL AND INCONEL PIPE FITTINGS AVAILABLE FROM MILL

Street Elbows 90°	Return Bends	Weld Neck Flanges
Locknuts	Butt Weld 45° Elbows	Dye Tank Flanges and Plugs
Extra Heavy Couplings	Butt Weld 90° Elbows	Blind Flanges
3000 Pound Couplings	Reducing Elbows 90°	Tank Welding Flanges faced
6000 Pound Couplings	Reducing Tees	and tapped per sketch
Extra Heavy Elbows 90°	Flanged Unions	Cast Welding Nipples, also known
Extra Heavy Tees	Flanged Elbows 90°	as Van Stone Nipples and
"Y" Laterals	Flanged Tees	Stub Ends
Half Couplings	Floor Flanges tapped only with	Butt Weld Return Bends
Flanged Elbows 90°	cast countersunk bolt holes	Reducing Couplings

MONEL—NICKEL—INCONEL WELDING FITTINGS

STANDARD IRON PIPE SIZES (SCHEDULE 40)

Stock Sizes for Fittings Illustrated Below

I.P.S. SIZE Inches	WALL THICKNESS Inches	I.P.S. SIZE Inches	WALL THICKNESS Inches	I.P.S. SIZE Inches	WALL THICKNESS Inches	I.P.S. SIZE Inches	WALL THICKNESS Inches	I.P.S. SIZE Inches	WALL THICKNESS Inches
$\frac{3}{4}$ "	.113	$1\frac{1}{2}$ "	.145	3"	.216	5"	.258	10"	.365
1"	.133	2"	.154	$3\frac{1}{2}$ "	.226	6"	.280	12"	.375
$1\frac{1}{4}$ "	.140	$2\frac{1}{2}$ "	.203	4"	.237	8"	.322		

Monel Concentric Reducers and Monel Eccentric Reducers available in intermediate sizes from 1" x $\frac{3}{8}$ " to 12" x 10".



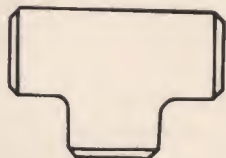
90° LONG RADIUS ELBOWS



45° LONG RADIUS ELBOWS



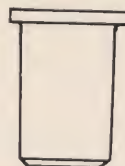
180° LONG RADIUS RETURN BENDS



TEES—STRAIGHT



WELDING CAPS



STUB ENDS—LONG AND SHORT

Light Weight I. P. S. (Schedule 10) and Extra Heavy I. P. S. (Schedule 80) Welding Fittings available from mill.

Complete stocks of Monel and Nickel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

FASTENERS

WELDING AND BRAZING

SPECIAL PRODUCTS

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POWELL MONEL, NICKEL AND INCONEL VALVES



MONEL GATE VALVES

Screwed Ends—Powell Figure No. 1828

Standard I.P.S. $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2"



NICKEL GATE VALVES

Screwed Ends—Powell Figure No. 1830

Standard I.P.S. $\frac{1}{8}$ " $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2"



NICKEL GATE VALVES

Flanged Ends, F. & D. Powell Figure No. 1831

Standard I.P.S. $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2" 3"



MONEL GLOBE VALVES

Screwed Ends—Powell Figure No. 1834

Standard I.P.S. $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2"



NICKEL GLOBE VALVES

Screwed Ends—Powell Figure No. 1837

Standard I.P.S. $\frac{1}{8}$ " $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2"



NICKEL GLOBE VALVES

Flanged Ends, F. & D. Powell Figure No. 1839

Standard I.P.S. $\frac{3}{4}$ " 1" $1\frac{1}{4}$ " $1\frac{1}{2}$ " 2" 3" (3" illustrated; $\frac{3}{4}$ " to 2" similar to figure No. 1837, above, with flanged ends)



NICKEL NEEDLE GLOBE VALVES

Powell Figure No. 1976

Standard I.P.S. $\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ "

Any standard type Powell Valve that may be required for specialized applications can be furnished from the mill.

INCONEL VALVES

Any type Powell Valve can be furnished in Inconel from the mill.

Write your nearest Whitehead branch office for literature description of the Powell line of Valves.

For a comparison of the properties and qualities of different Inco Nickel alloys, consult chart on pages 8 and 9.



PIPE • TUBE • VALVES • FITTINGS

INDEX—STAINLESS STEEL • PIPE • TUBE • FITTINGS • VALVES

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The choice of a specific alloy in Stainless Steel tube is generally determined by the need for its resistance to prevailing corrosive conditions, appearance, further fabrication, and cost.

The Stainless Steel Alloy Guide on pages 10 and 11 may be used as a guide in selection of alloy by comparing the relative characteristics of one grade against another. The important element of cost recommends the use of welded tubing if other demands are satisfied. The Trentweld Stainless tube items listed hereafter in this section are manufactured by a unique process which results in a welded tube of uniform wall thickness, controlled grain size, good homogeneity, smooth surface finish, uniform hardness without apparent laps or seams.

The more popular grades are listed on the following pages and are carried in stock.

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

PIPE • TUBE • VALVES • FITTINGS



Types No. 304 (18-8) and No. 316 (18-12-Mo)

TRENTWELD STAINLESS STEEL TUBING

Annealed, White Pickle Finish*

In Random 18- to 20-Foot Mill Lengths

O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot
1/8"	.035 (No. 20)	.055	.034 lbs.	1"	.035 (No. 20)	.930	.361 lbs.
3/16"	.035 (No. 20)	.117	.057 lbs.		.049 (No. 18)	.902	.498 lbs.
1/4"	.035 (No. 20)	.180	.080 lbs.		.058 (No. 17)	.884	.583 lbs.
	.049 (No. 18)	.152	.105 lbs.		.065 (No. 16)	.870	.649 lbs.
	.065 (No. 16)	.120	.128 lbs.		.083 (No. 14)	.834	.813 lbs.
5/16"	.035 (No. 20)	.242	.104 lbs.		.095 (No. 13)	.810	.918 lbs.
	.049 (No. 18)	.214	.138 lbs.		.109 (No. 12)	.782	1.037 lbs.
	.065 (No. 16)	.182	.172 lbs.		.120 (No. 11)	.760	1.288 lbs.
3/8"	.028 (No. 22)	.319	.104 lbs.	1 1/8"	.035 (No. 20)	1.055	.407 lbs.
	.035 (No. 20)	.305	.127 lbs.		.049 (No. 18)	1.027	.563 lbs.
	.049 (No. 18)	.277	.171 lbs.		.065 (No. 16)	.995	.736 lbs.
	.065 (No. 16)	.245	.215 lbs.		.083 (No. 14)	.959	.924 lbs.
7/16"	.028 (No. 22)	.381	.123 lbs.		.095 (No. 13)	.935	1.045 lbs.
	.035 (No. 20)	.367	.151 lbs.		.120 (No. 11)	.885	1.288 lbs.
	.049 (No. 18)	.340	.204 lbs.	1 1/4"	.035 (No. 20)	1.180	.454 lbs.
	.065 (No. 16)	.307	.259 lbs.		.049 (No. 18)	1.152	.628 lbs.
1/2"	.028 (No. 22)	.444	.141 lbs.		.058 (No. 17)	1.134	.738 lbs.
	.035 (No. 20)	.430	.174 lbs.		.065 (No. 16)	1.120	.823 lbs.
	.049 (No. 18)	.402	.236 lbs.		.083 (No. 14)	1.084	1.034 lbs.
	.058 (No. 17)	.384	.274 lbs.		.095 (No. 13)	1.060	1.172 lbs.
	.065 (No. 16)	.370	.302 lbs.		.120 (No. 11)	1.010	1.448 lbs.
	.083 (No. 14)	.334	.370 lbs.	1 3/8"	.035 (No. 20)	1.305	.501 lbs.
	.095 (No. 13)	.310	.411 lbs.		.049 (No. 18)	1.277	.694 lbs.
5/8"	.035 (No. 20)	.493	.197 lbs.		.058 (No. 17)	1.259	.816 lbs.
	.049 (No. 18)	.464	.269 lbs.		.065 (No. 16)	1.245	.909 lbs.
	.058 (No. 17)	.446	.313 lbs.		.083 (No. 14)	1.209	1.145 lbs.
	.065 (No. 16)	.432	.346 lbs.		.095 (No. 13)	1.185	1.299 lbs.
	.083 (No. 14)	.396	.425 lbs.		.120 (No. 11)	1.135	1.608 lbs.
	.095 (No. 13)	.372	.475 lbs.	1 1/2"	.035 (No. 20)	1.430	.548 lbs.
3/4"	.028 (No. 22)	.569	.178 lbs.		.049 (No. 18)	1.402	.759 lbs.
	.035 (No. 20)	.555	.220 lbs.		.058 (No. 17)	1.384	.893 lbs.
	.049 (No. 18)	.527	.301 lbs.		.065 (No. 16)	1.370	.996 lbs.
	.058 (No. 17)	.509	.351 lbs.		.083 (No. 14)	1.334	1.256 lbs.
	.065 (No. 16)	.495	.389 lbs.		.095 (No. 13)	1.310	1.426 lbs.
	.083 (No. 14)	.459	.480 lbs.		.120 (No. 11)	1.260	1.769 lbs.
	.095 (No. 13)	.435	.538 lbs.	1 3/4"	.035 (No. 20)	1.555	.594 lbs.
1 1/16"	.035 (No. 20)	.617	.244 lbs.		.049 (No. 18)	1.527	.825 lbs.
	.049 (No. 18)	.589	.334 lbs.		.065 (No. 16)	1.495	1.083 lbs.
	.065 (No. 16)	.557	.432 lbs.		.083 (No. 14)	1.459	1.367 lbs.
3/4"	.028 (No. 22)	.694	.216 lbs.		.095 (No. 13)	1.435	1.552 lbs.
	.035 (No. 20)	.680	.267 lbs.		.120 (No. 11)	1.385	1.929 lbs.
	.042 (No. 19)	.666	.318 lbs.	1 3/4"	.035 (No. 20)	1.680	.641 lbs.
	.049 (No. 18)	.652	.367 lbs.		.049 (No. 18)	1.652	.890 lbs.
	.058 (No. 17)	.634	.429 lbs.		.065 (No. 16)	1.620	1.170 lbs.
	.065 (No. 16)	.620	.475 lbs.		.083 (No. 14)	1.584	1.478 lbs.
	.083 (No. 14)	.584	.491 lbs.		.095 (No. 13)	1.560	1.679 lbs.
	.095 (No. 13)	.560	.665 lbs.		.120 (No. 11)	1.510	2.089 lbs.
7/8"	.035 (No. 20)	.805	.314 lbs.	1 7/8"	.065 (No. 16)	1.745	1.257 lbs.
	.049 (No. 18)	.777	.432 lbs.	2"	.035 (No. 20)	1.930	.734 lbs.
	.058 (No. 17)	.759	.506 lbs.		.049 (No. 18)	1.902	1.021 lbs.
	.065 (No. 16)	.745	.562 lbs.		.065 (No. 16)	1.870	1.343 lbs.
	.083 (No. 14)	.709	.702 lbs.		.083 (No. 14)	1.834	1.699 lbs.
	.095 (No. 13)	.685	.791 lbs.		.095 (No. 13)	1.810	1.933 lbs.
					.120 (No. 11)	1.760	2.409 lbs.

*Sizes 1/2" O. D. and smaller Bright Annealed Finish.

(Continued on next page)

For a comparison of the properties and qualities of different Stainless Steel alloys, consult chart on pages 10 and 11.

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The Products Listed on This Page Are

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RODS

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TUBE
VALVES
FITTINGS

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN-
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PIPE • TUBE • VALVES • FITTINGS

Types **No. 304** (18-8) and **No. 316** (18-12-Mo)

TRENTWELD STAINLESS STEEL TUBING (Continued)

O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot
2 1/4"	.049 (No. 18)	2.152	1.152 lbs.	3"	.095 (No. 13)	2.810	2.947 lbs.
	.065 (No. 16)	2.120	1.517 lbs.		.109 (No. 12)	2.532	3.365 lbs.
	.083 (No. 14)	2.084	1.921 lbs.		.120 (No. 11)	2.760	3.691 lbs.
	.095 (No. 13)	2.060	2.186 lbs.	3 1/4"	.065 (No. 16)	3.120	2.211 lbs.
	.120 (No. 11)	2.010	2.730 lbs.		.083 (No. 14)	3.054	2.807 lbs.
2 1/2"	.049 (No. 18)	2.402	1.283 lbs.		.095 (No. 13)	3.040	3.201 lbs.
	.065 (No. 16)	2.370	1.690 lbs.		.120 (No. 11)	3.010	4.011 lbs.
	.083 (No. 14)	2.334	2.143 lbs.	3 1/2"	.065 (No. 16)	3.370	2.385 lbs.
	.095 (No. 13)	2.310	2.440 lbs.		.083 (No. 14)	3.334	3.029 lbs.
	.120 (No. 11)	2.260	3.050 lbs.		.095 (No. 13)	3.310	3.455 lbs.
2 3/4"	.065 (No. 16)	2.620	1.864 lbs.		.120 (No. 11)	3.260	4.332 lbs.
	.083 (No. 14)	2.584	2.364 lbs.	4"	.065 (No. 16)	3.870	2.732 lbs.
	.095 (No. 13)	2.540	2.694 lbs.		.083 (No. 14)	3.834	3.472 lbs.
	.120 (No. 11)	2.510	3.371 lbs.		.095 (No. 13)	3.810	3.962 lbs.
3"	.065 (No. 16)	2.870	2.037 lbs.		.109 (No. 12)	3.782	4.530 lbs.
	.083 (No. 14)	2.834	2.586 lbs.		.120 (No. 11)	3.760	4.973 lbs.

Larger sizes up to 36" O.D. incl. available for prompt mill shipment.

Type **No. 304** (18-8)

TRENTWELD STAINLESS STEEL BEVERAGE TUBING

In 50-Ft. Coils—1/4" x 3/16" Packed 4 Coils to Carton—3/8" Packed 3 Coils to Carton

O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	APPROX. WT. Per Coil	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	APPROX. WT. Per Coil	O. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	APPROX. WT. Per Coil
1/4"	.020	.049 lbs.	2.50 lbs.	3/16"	.020	.063 lbs.	3.13 lbs.	3/8"	.020	.093 lbs.	4.68 lbs.

Annealed and finished inside and outside by an exclusive Trent development. Readily flared, flattened, flanged or coiled for easy installation and maintenance.

Type **No. 304** (18-8)

TRENTWELD STAINLESS STEEL SANITARY TUBING

Polished O. D. and I. D. to 180 Grit x 10 Ft. Exact Lengths

O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot	O. D. Inches	WALL THICKNESS Inches B.W. Ga.	I. D. Inches	APPROX. WT. Per Foot
1"	.049 (No. 18)	.902	.498 lbs.	2 1/2"	.065 (No. 16)	2.370	1.690 lbs.
1 1/2"	.049 (No. 18)	1.402	.759 lbs.	3"	.065 (No. 16)	2.870	2.037 lbs.
2"	.065 (No. 16)	1.870	1.343 lbs.	4"	.083 (No. 14)	3.834	3.472 lbs.

Type **No. 304** (18-8), Type **No. 316** (18-12-Mo), Type **No. 347** (18-10-Cb Stabilized)

TRENTWELD STAINLESS STEEL PIPE

Annealed, White Pickle Finish

In Random 18- to 20-Foot Mill Lengths

STANDARD IRON PIPE SIZES (SCHEDULE 40S)

I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
1/8"	.405	.269	.068	.245 lbs.	1"	1.315	1.049	.133	1.679 lbs.
1/4"	.540	.364	.088	.425 lbs.	1 1/4"	1.660	1.380	.140	2.273 lbs.
3/8"	.675	.493	.091	.568 lbs.	1 1/2"	1.900	1.610	.145	2.718 lbs.
1/2"	.840	.622	.109	.851 lbs.	2"	2.375	2.067	.154	3.653 lbs.
3/4"	1.050	.824	.113	1.131 lbs.					

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

PIPE • TUBE • VALVES • FITTINGS



Type No. 304 (18-8), Type No. 316 (18-12-Mo), Type No. 347 (18-10-Cb Stabilized)

SEAMLESS STAINLESS STEEL PIPE

Annealed, White Pickle Finish

In Random 18- to 20-Foot Mill Lengths

STANDARD IRON PIPE SIZES (SCHEDULE 40S)

I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot	I.P.S. SIZE Inches	O. D. Inches	I. D. Inches	WALL THICKNESS Inches	APPROX. WT. Per Foot
2½"	2.875	2.469	.203	5.793 lbs.	4"	4.500	4.026	.237	10.790 lbs.
3"	3.500	3.068	.216	7.576 lbs.	5"	5.563	5.047	.258	14.620 lbs.
3½"	4.000	3.548	.226	9.109 lbs.	6"	6.625	6.065	.280	18.970 lbs.

Type No. 304 (18-8), Type No. 316 (18-12-Mo), Type No. 347 (18-10-Cb Stabilized)

TRENTWELD STAINLESS STEEL LIGHT WALL PIPE

Annealed, White Pickle Finish

In Random 18- to 20-Foot Mill Lengths

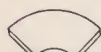
STANDARD IRON PIPE SIZES (SCHEDULE 10S)

I.P.S. SIZE Inches	O. D. Inches	WALL THICKNESS Inches	B.W. Ga.	APPROX. WT. Per Foot	I.P.S. SIZE Inches	O. D. Inches	WALL THICKNESS Inches	B.W. Ga.	APPROX. WT. Per Foot
¾"	1.050	.083	(No. 14)	.857 lbs.	2"	2.375	.109	(No. 12)	2.638 lbs.
1"	1.315	.109	(No. 12)	1.404 lbs.	2½"	2.875	.120	(No. 11)	3.531 lbs.
1¼"	1.660	.109	(No. 12)	1.806 lbs.	3"	3.500	.120	(No. 11)	4.332 lbs.
1½"	1.900	.109	(No. 12)	2.085 lbs.	3½"	4.000	.120	(No. 11)	4.973 lbs.

STAINLESS STEEL FORGED WELDING FITTINGS

For Schedule 5S, 10S, 40S and 80S Pipe

I. P. S. Sizes from ½" to 12"



90° L. R. ELBOW



45° L. R. ELBOW



180° L. R. RETURN BEND



ECCENTRIC REDUCER



CONCENTRIC REDUCER



CAP



TEE



STUB END

STAINLESS STEEL TUBE WELDING AND BRAZING FITTINGS

O. D. Tube Sizes ¾" to 24"



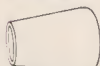
45° ELBOW



90° ELBOW



TEE



CONCENTRIC REDUCER



ECCENTRIC REDUCER



CAP



ADAPTERS



180° RETURN BEND



STUB END

For a comparison of the properties and qualities of different Stainless Steel alloys, consult chart on pages 10 and 11.














PIPE • TUBE • VALVES • FITTINGS

Types 304, 316, 347

STAINLESS STEEL SCREWED FITTINGS

150-Lb. Standard I. P. S.

†Forgings. ‡Machined from bar. §Castings.

	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
90° ELBOWS... 	†	†	†	†	§	§	§	§	§	§	§	§
45° ELBOWS... 	†	†	†	†	§	§	§	§	§	§	§	§
TEES... 	†	†	†	†	§	§	§	§	§	§	§	§
CROSSES... 	†	†	†	§	§	§	§	§	§	§	§	§
STREET ELBOWS... 	§	§	§	§	§	§	§	§	§	§	§	§
CAPS... 	†	†	†	†	†	†	†	†	§	§	§	§
COUPLINGS... 	†	†	†	†	†	†	†	†	†	§	§	§
PLUGS... 	†	†	†	†	†	†	†	†	†	§	§	§
BUSHINGS... 	..	†	†	†	†	†	†	†	†	§	§	§
UNIONS... 	†	†	†	†	†	†	†	†	†	§	§	§
LOCKNUTS... 	†	†	†	†	†	†	†	†	†	§	§	§

Reducing elbows, tees, couplings and crosses made to order. Some sizes in stock. Flanged fittings available for prompt mill shipment in sizes shown above.

Types 304, 316, 347

STAINLESS STEEL PIPE NIPPLES

Standard I. P. S.

PIPE SIZE	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
LENGTH—CLOSE	3/4"	7/8"	1"	1 1/8"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	2"	2 1/2"	2 3/4"	2 7/8"
LENGTH—SHORT	1 1/2"	1 1/2"	1 1/2"	1 1/2"	2"	2"	2 1/2"	2 1/2"	2 1/2"	3"	3"	4"

Longer lengths up to 12 inches also from stock.

For a comparison of the properties and qualities of different Stainless Steel alloys, consult chart on pages 10 and 11.

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FASTENERS

WELDING AND BRAZING

SPECIAL PRODUCTS

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The Products Listed on This Page Are

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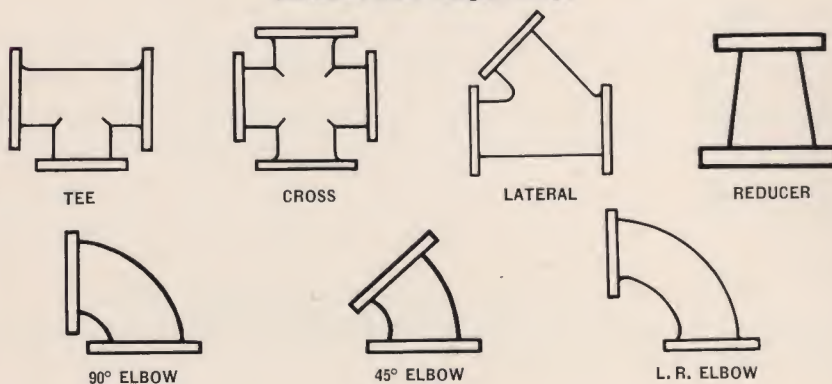
Types 304, 316, 347 STAINLESS STEEL PIPE FLANGES 150-Lb. Standard I. P. S.

†Forgings. §Castings.

SIZES	COMPANION FLANGE (T, F, D)	SLIP-ON FLANGE (B, F, D)	BLIND FLANGE (F & L)	WELDING SPUDS
1/2" x 3 1/2"	†	†	§	†
3/4" x 3 7/8"	†	†	§	†
1" x 4 1/4"	†	†	§	†
1 1/4" x 4 5/8"	†	†	§	†
1 1/2" x 5"	†	†	§	†
2" x 6"	†	†	§	†
2 1/2" x 7"	§	§	§	§
3" x 7 1/2"	§	§	§	§
4" x 9"	§	§	§	§
5" x 10"	§	§	§	..
6" x 11"	§	§	§	..

Cast Welding Spuds also available in 1/8", 1/4", and 3/8".

Types 304, 316, 317 STAINLESS STEEL FLANGED FITTINGS Standard 150-Lb. Flanged Fittings



STAINLESS STEEL PIPE AND TUBE ACCESSORY PRODUCTS Available Promptly

SANITARY
TUBE FITTINGS & VALVES

DIAPHRAGM VALVES

RECESSED
END FITTINGS

WELDOLETS &
THREDOLETS

CONICAL END
FITTINGS

SPIRAL
WELDED TUBE

SOCKET WELD
FITTINGS

PETCOCKS, BIBB FAUCETS
& GAUGE GLASS FITTINGS

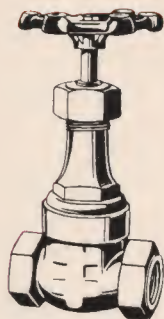
WELDING
FLANGES

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION**.

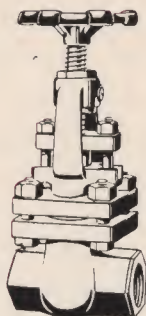


PIPE • TUBE • VALVES • FITTINGS

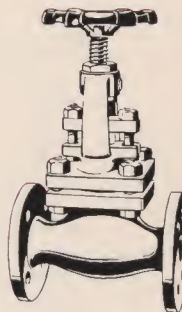
POWELL STAINLESS STEEL VALVES



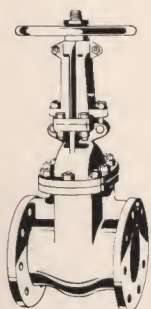
SCREWED END GATE VALVE
SCREW-IN BONNET I. S. S.
(Sizes, $\frac{1}{4}$ " to 2", inc.)
Fig. 1832



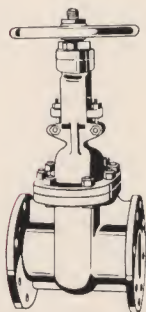
GATE VALVE
SCREWED END O. S. & Y.
(Sizes, $\frac{1}{4}$ " to 2", inc.)
Fig. 1968



GATE VALVE
FLANGED END O. S. & Y.
(Sizes, $\frac{1}{4}$ " to 2", inc.)
Fig. 1969



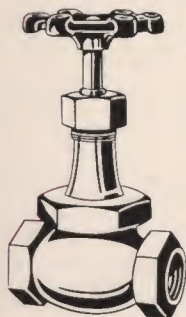
O. S. & Y. GATE VALVE—
SOLID WEDGE AND
SEPARABLE YOKE ARMS
FLANGED END
(Sizes, 5" to 30", inc.)
Fig. 2453SG



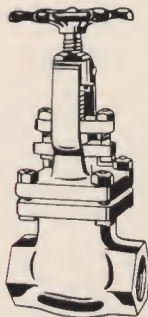
O. S. & Y. GATE VALVE—
SOLID WEDGE AND ONE-PIECE
YOKE BONNET
FLANGED END
(Sizes, 2 $\frac{1}{2}$ " to 4", inc.)
Fig. 2453SG



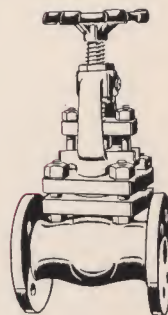
NEEDLE GLOBE VALVE
(Sizes $\frac{1}{4}$ " $\frac{3}{8}$ ", $\frac{1}{2}$ "")
Fig. 1976



UNION BONNET GLOBE VALVE
SCREWED END
(Sizes, $\frac{1}{4}$ " to 2", inc.)
Fig. 1861



GLOBE VALVE
SCREWED END O. S. & Y.
(Sizes, $\frac{1}{4}$ " to 3", inc.)
Fig. 1978



GLOBE VALVE
FLANGED END O. S. & Y.
(Sizes, $\frac{1}{4}$ " to 3", inc.)
Fig. 1979

Most sizes listed above regularly carried in stock. Other types and sizes available from mill shipments.
Write for descriptive Powell Catalog.

Complete stocks of Stainless Steel Screws, Rivets, Nails, etc., are listed in **FASTENERS SECTION.**

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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AND
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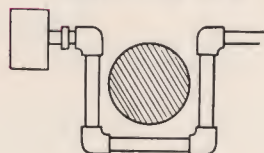
P A R K E R I N D E X

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The Parker Appliance Company's line of tube and pipe fittings is precision manufactured to meet the most exacting requirements of industry for trouble-free fluid power lines. A complete line of these fittings is listed on the following pages and the items are available from stock for immediate delivery.

The use of tubing systems, joined by Parker fittings, incorporates many advantages for lines carrying liquids or gases. Because tubing has a relatively thin wall with high strength values, it is lighter in weight, more compact and can be readily formed to the contours of machines and equipment. The flexibility of tubing reduces the number of fittings required on installations by substituting bends for elbows, and has a tendency to dissipate vibration and allow for a streamlined and less turbulent flow of liquids or gases. Fabrication is cleaner, and with Parker fittings, joints are tighter and maintenance simpler.

This illustration gives a quick visual comparison of two comparable units.



OLD METHOD

Each connection threaded—required numerous fittings—system not flexible nor easy to install and service. Connections not smooth inside—pockets obstruct flow.



MODERN METHOD

Bendable tubing needs fewer fittings—no "threading on the job"—system light and compact—easy to install and service—no internal pockets or obstructions to free flow.



PIPE • TUBE • VALVES • FITTINGS

KEY TO PARKER PARTS IDENTIFICATION CODE

To simplify the placing of orders for assembled fittings, or for individual parts, an identification code has been devised for Parker Triple, Triple-Lok and Ferulok Tube Fitting items. Each item is identified and listed according to code symbol as well as dimensions. The following table explains the code.

The following symbols, singly, or in combination, describe the size, component parts and the metal of a Parker Fitting.

PARTS

B Nut	G Connector—Tube to Female Pipe Thread	R Tee—Tube to Male Pipe Thread to Tube
C Elbow—Tube to Male Pipe Thread	H Union—Tube to Tube	S Tee—Tube to Tube to Male Pipe Thread
C-45° Elbow—Tube to Male Pipe Thread (Triple Fitting)	J Tee—All tube outlets	T Sleeve
D Elbow—Tube to Female Pipe Thread	K Cross—All tube outlets	TU Ferrule
E Elbow—Tube to Tube	M Tee—Tube to Female Pipe Thread to Tube	V 45° Elbow—Tube to Male Pipe Thread (Triple-Lok and Ferulok)
F Nipple—Tube to Male Pipe Thread	O Tee—Tube to Tube to Female Pipe Thread	W Bulkhead Unions
FN Cap—Screws on to B Nut to Cap end of line	PN Plug Nut—Plug Coupling with Tube connection	X Triple-Lok
		XX Extra Heavy

SIZE

SIZE No.	TUBE OUTSIDE DIAM. Inches	PIPE SIZE Inches	SIZE No.	TUBE OUTSIDE DIAM. Inches	PIPE SIZE Inches
2	1/8"	1/8"	8-8	1/2"	1/2"
3	3/16"	1/8"	8-12	1/2"	3/4"
4	1/4"	1/8"	10	5/8"	1/2"
4-4	1/4"	1/4"	10-6	5/8"	3/8"
5	3/16"	1/8"	12	3/4"	3/4"
5-4	3/16"	1/4"	12-8	3/4"	1/2"
6	3/8"	1/4"	14	7/8"	3/4"
6-2	3/8"	1/8"	16	1"	1"
6-6	3/8"	3/8"	16-12	1"	3/4"
6-8	3/8"	1/2"	20	1 1/4"	1 1/4"
8	1/2"	3/8"	24	1 1/2"	1 1/2"
8-4	1/2"	1/4"			

METAL—When the metal is other than Brass it is identified by adding:

S for Steel—SS for Stainless Steel—CS for Copper Silicon—D for Aluminum.

TYPE OF FITTING—When the letter T appears in the code, the fitting is TRIPLE.

When the letter U appears in the code, the fitting is FERULOK.

When the letters TX appear in the code, the fitting is TRIPLE-LOK.

EXAMPLE: The item 8DBTX-SS is interpreted from the following symbols:

8 = 1/2" tube to 3/8" pipe. D = Elbow tube to female pipe. B = Nut.

TX = Triple-Lok sleeve. SS = Stainless steel.

SHEETS

ALUMI-
NUM

RODS

SHAPES

PIPE
TUBE
VALVES
FITTINGS

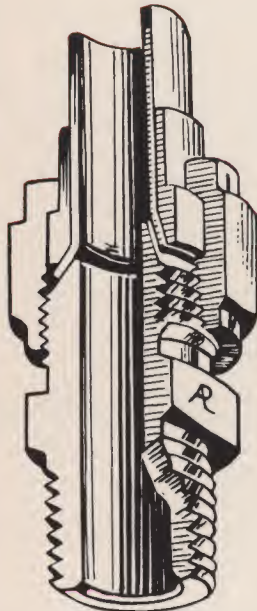
BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

STAIN
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TRIPLE
(TRIPLE XX)

PARKER TRIPLE (AND TRIPLE XX) FITTING

The 3-piece **brass** fitting for use with copper tubing.

Available in extra weight (Triple XX) for heavy wall tubing.

30° flare angle—more sealing surface than with high angle flare; no danger of weak fitting nose as with low angle flare.

Free-floating sleeve acts as lock washer, damps vibration, and prevents wiping or twisting of tube flare in make-up.

Bends in tube can be made close to connection since nut has sufficient clearance to slip over bend.

Easy assembly and disassembly—can be reassembled repeatedly. Short tube "entry" minimizes springing of tube—a major advantage in close quarters.

PARKER TRIPLE-LOK TUBE FITTING

The standard 37° flare fitting famous for its **sleeve**.

Meets the new Industry Standards for tubing connections.

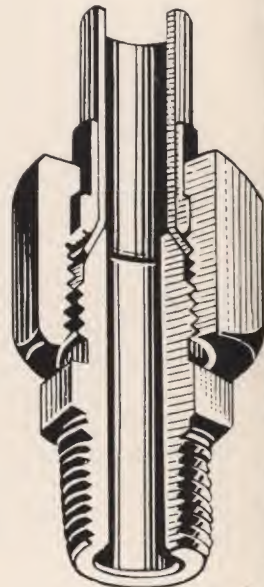
Readily passes the rigid qualification tests (repeated assembly, impulse, pressure, vibration, combination impulse and vibration) of Specification AN-F-47. Fully conforms to "Joint Industry Committee" hydraulic standards.

Made in steel and 316 stainless steel with dryseal (N.P.T.F.) pipe threads; available in aluminum alloy with standard taper (N.P.T.) pipe threads.

Free-floating sleeve acts as lock washer, damps vibration, and prevents wiping or twisting of tube flare in make-up.

Bends in tube can be made close to connection since nut has sufficient clearance to slip over bend.

Easy assembly and disassembly—can be reassembled repeatedly. Short tube "entry" minimizes springing of tube—a major advantage in close quarters.



TRIPLE-LOK



PIPE • TUBE • VALVES • FITTINGS

PARKER

FBT MALE CONNECTOR

FLARED TUBE CONNECTION TO
MALE PIPE THREADS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/8" T to 1/8" M	2 FBT	2 FBTX-S		
3/16" T to 1/8" M	3 FBT	3 FBTX-S		
1/4" T to 1/8" M	4 FBT	4 FBTX-S	4 FBTX-SS	
1/4" T to 1/4" M	4-4 FBT	4-4 FBTX-S	4-4 FBTX-SS	
5/16" T to 1/8" M	5 FBT	5 FBTX-S	5 FBTX-SS	
3/16" T to 1/4" M	5-4 FBT	5-4 FBTX-S		
3/8" T to 1/4" M	6 FBT	6 FBTX-S	6 FBTX-SS	
3/8" T to 1/8" M	6-2 FBT	6-2 FBTX-S		
3/8" T to 3/8" M	6-6 FBT	6-6 FBTX-S		
3/8" T to 1/2" M	6-8 FBT	6-8 FBTX-S		
7/16" T to 1/4" M	7 FBT	7 FBTX-S		
1/2" T to 3/8" M	8 FBT	8 FBTX-S	8 FBTX-SS	
1/2" T to 1/4" M	8-4 FBT	8-4 FBTX-S		
1/2" T to 1/2" M	8-8 FBT	8-8 FBTX-S	8-8 FBTX-SS	
1/2" T to 3/4" M	8-12 FBT	8-12 FBTX-S		
5/8" T to 1/2" M	10 FBT	10 FBTX-S	10 FBTX-SS	
5/8" T to 3/8" M	10-6 FBT	10-6 FBTX-S		
3/4" T to 3/4" M	12 FBT	12 FBTX-S	12 FBTX-SS	
3/4" T to 1/2" M	12-8 FBT	12-8 FBTX-S		
7/8" T to 3/4" M	14 FBT	14 FBTX-S		
7/8" T to 1/2" M	14-8 FBT			
1" T to 1" M	16 FBT	16 FBTX-S	16 FBTX-SS	
1" T to 3/4" M	16-12 FBT	16-12 FBTX-S		
1 1/4" T to 1 1/4" M	20 FBT	20 FBTX-S		
1 1/2" T to 1 1/2" M	24 FBT	24 FBTX-S		

PARKER

3115-2HBT BULKHEAD UNION

FLARED TUBE CONNECTIONS
—BOTH PORTS.
INCLUDING LOCKNUT



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/4" T	3115-2HBT-4	4 WBTX-S		
3/16" T to 3/16" T	3115-2HBT-5	5 WBTX-S		
3/8" T to 3/8" T	3115-2HBT-6	6 WBTX-S		
1/2" T to 1/2" T		8 WBTX-S		
5/8" T to 5/8" T		10 WBTX-S		
3/4" T to 3/4" T		12 WBTX-S		
1" T to 1" T		16 WBTX-S		

*Available in XX Extra Heavy (add -XX to Assembly Part No.)

PARKER

GBT FEMALE CONNECTOR

FLARED TUBE CONNECTION TO
FEMALE PIPE THREADS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/8" T to 1/8" F	2 GBT			
3/16" T to 1/8" F	3 GBT			
1/4" T to 1/8" F	4 GBT	4 GBTX-S	4 GBTX-SS	
1/4" T to 1/4" F	4-4 GBT	4-4 GBTX-S		
5/16" T to 1/8" F	5 GBT	5 GBTX-S		
3/16" T to 1/4" F	5-4 GBT	5-4 GBTX-S		
3/8" T to 1/4" F	6 GBT	6 GBTX-S	6 GBTX-SS	
3/8" T to 3/8" F	6-6 GBT			
1/2" T to 3/8" F	8 GBT	8 GBTX-S	8 GBTX-SS	
1/2" T to 1/2" F	8-8 GBT	8-8 GBTX-S		
5/8" T to 1/2" F	10 GBT	10 GBTX-S		
3/4" T to 3/4" F	12 GBT	12 GBTX-S		
7/8" T to 3/4" F	14 GBT	14 GBTX-S		
1" T to 1" F	16 GBT	16 GBTX-S		
1 1/4" T to 1 1/4" F		20 GBTX-S		
1 1/2" T to 1 1/2" F		24 GBTX-S		

PARKER

HBT UNION

FLARED TUBE CONNECTION TO
FLARED TUBE CONNECTION



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/4" T	4 HBT	4 HBTX-S	4 HBTX-SS	
3/16" T to 3/16" T	5 HBT	5 HBTX-S	5 HBTX-SS	
3/8" T to 3/8" T	6 HBT	6 HBTX-S	6 HBTX-SS	
1/2" T to 1/2" T	8 HBT	8 HBTX-S	8 HBTX-SS	
5/8" T to 5/8" T	10 HBT	10 HBTX-S	10 HBTX-SS	
3/4" T to 3/4" T	12 HBT	12 HBTX-S	12 HBTX-SS	
7/8" T to 7/8" T		14 HBTX-S		
1" T to 1" T	16 HBT	16 HBTX-S	16 HBTX-SS	
1 1/4" T to 1 1/4" T		20 HBTX-S		
1 1/2" T to 1 1/2" T		24 HBTX-S		

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PARKER

CBT ELBOW

FLARED TUBE CONNECTION TO
MALE PIPE THREADS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
Assembly Part No.	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/8" M	4 CBT	4 CBTX-S	4 CBTX-SS	
1/4" T to 1/4" M	4-4 CBT	4-4 CBTX-S		
5/16" T to 1/8" M	5 CBT	5 CBTX-S	5 CBTX-SS	
5/16" T to 1/4" M	5-4 CBT	5-4 CBTX-S		
3/8" T to 1/4" M	6 CBT	6 CBTX-S	6 CBTX-SS	
3/8" T to 1/8" M	6-2 CBT	6-2 CBTX-S		
3/8" T to 3/8" M	6-6 CBT	6-6 CBTX-S		
3/8" T to 1/2" M	6-8 CBT	6-8 CBTX-S		
1/2" T to 3/8" M	8 CBT	8 CBTX-S	8 CBTX-SS	
1/2" T to 1/4" M	8-4 CBT	8-4 CBTX-S	8-4 CBTX-SS	
1/2" T to 1/2" M	8-8 CBT	8-8 CBTX-S	8-8 CBTX-SS	
1/2" T to 3/4" M	8-12 CBT	8-12 CBTX-S		
5/8" T to 1/2" M	10 CBT	10 CBTX-S	10 CBTX-SS	
5/8" T to 3/8" M	10-6 CBT	10-6 CBTX-S		
3/4" T to 3/4" M	12 CBT	12 CBTX-S	12 CBTX-SS	
3/4" T to 1/2" M	12-8 CBT	12-8 CBTX-S		
7/8" T to 3/4" M	14 CBT	14 CBTX-S		
1" T to 1" M	16 CBT	16 CBTX-S		
1" T to 3/4" M	16-12 CBT	16-12 CBTX-S		
1 1/4" T to 1 1/4" M		20 CBTX-S		
1 1/2" T to 1 1/2" M		24 CBTX-S		

PARKER

EBT ELBOW

FLARED TUBE CONNECTIONS
—BOTH PORTS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
Assembly Part No.	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/4" T	4 EBT	4 EBTX-S	4 EBTX-SS	
5/16" T to 5/16" T	5 EBT	5 EBTX-S		
3/8" T to 3/8" T	6 EBT	6 EBTX-S	6 EBTX-SS	
1/2" T to 1/2" T	8 EBT	8 EBTX-S	8 EBTX-SS	
5/8" T to 5/8" T	10 EBT	10 EBTX-S		
3/4" T to 3/4" T	12 EBT	12 EBTX-S		
7/8" T to 7/8" T	14 EBT	14 EBTX-S		
1" T to 1" T	16 EBT	16 EBTX-S		

PARKER

CBT45 45° ELBOW

FLARED TUBE CONNECTION TO
MALE PIPE THREADS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
Assembly Part No.	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/8" M	4 CBT45	4 VBTX-S		
1/4" T to 1/4" M	4-4 CBT45	4-4 VBTX-S		
5/16" T to 1/8" M	5 CBT45	5 VBTX-S		
5/16" T to 1/4" M	5-4 CBT45	5-4 VBTX-S		
3/8" T to 1/4" M	6 CBT45	6 VBTX-S		
3/8" T to 1/8" M	6-2 CBT45	6-2 VBTX-S		
3/8" T to 3/8" M	6-6 CBT45	6-6 VBTX-S		
3/8" T to 1/2" M	6-8 CBT45	6-8 VBTX-S		
1/2" T to 3/8" M	8 CBT45	8 VBTX-S		
1/2" T to 1/4" M	8-4 CBT45	8-4 VBTX-S		
1/2" T to 1/2" M	8-8 CBT45	8-8 VBTX-S		
1/2" T to 3/4" M	8-12 CBT45	8-12 VBTX-S		
3/8" T to 1/2" M	10 CBT45	10 VBTX-S		
5/8" T to 3/8" M	10-6 CBT45	10-6 VBTX-S		
3/4" T to 3/4" M	12 CBT45	12 VBTX-S		
3/4" T to 1/2" M	12-8 CBT45	12-8 VBTX-S		
7/8" T to 3/4" M	14 CBT45			
1" T to 1" M	16 CBT45	16 VBTX-S		
1" T to 3/4" M	16-12 CBT45	16-12 VBTX-S		

PARKER

DBT ELBOW

FLARED TUBE CONNECTION TO
FEMALE PIPE THREADS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
Assembly Part No.	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/4" T to 1/8" F	4 DBT	4 DBTX-S	4 DBTX-SS	
1/4" T to 1/4" F	4-4 DBT	4-4 DBTX-S		
5/16" T to 1/8" F	5 DBT	5 DBTX-S		
5/16" T to 1/4" F	6 DBT	6 DBTX-S	6 DBTX-SS	
3/8" T to 1/8" F	6-2 DBT			
3/8" T to 3/8" F	6-6 DBT	6-6 DBTX-S		
1/2" T to 3/8" F	8 DBT	8 DBTX-S	8 DBTX-SS	
1/2" T to 1/4" F	8-4 DBT			
1/2" T to 1/2" F	8-8 DBT			
3/8" T to 1/2" F	10 DBT	10 DBTX-S		
3/4" T to 3/4" F	12 DBT	12 DBTX-S		
3/4" T to 1/2" F	12-8 DBT	12-8 DBTX-S		
7/8" T to 3/4" F	14 DBT	14 DBTX-S		
1" T to 1" F	16 DBT	16 DBTX-S		
1 1/4" T to 1 1/4" F		20 DBTX-S		
1 1/2" T to 1 1/2" F		24 DBTX-S		

*Available in XX Extra Heavy (add -XX to Assembly Part No.)

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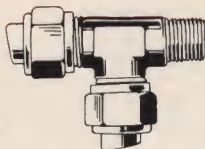


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PARKER

RBT TEE

FLARED TUBE CONNECTION
TO MALE PIPE THREADS
TO FLARED TUBE CONNECTION

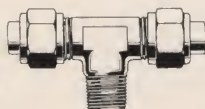


		TRIPLE TRIPLE-LOK		
		Brass*	Steel	Stainless (Type 316)
SIZE	Inches	Assembly Part No.	Assembly Part No.	Assembly Part No.
1/4" T to 1/8" M to 1/4" T		4 RBT	4 RBTX-S	4 RBTX-SS
3/8" T to 1/8" M to 3/8" T		5 RBT	5 RBTX-S	
3/8" T to 1/4" M to 3/8" T		6 RBT	6 RBTX-S	6 RBTX-SS
1/2" T to 3/8" M to 1/2" T		8 RBT	8 RBTX-S	8 RBTX-SS
5/8" T to 1/2" M to 5/8" T		10 RBT	10 RBTX-S	
3/4" T to 3/4" M to 3/4" T		12 RBT	12 RBTX-S	
7/8" T to 3/4" M to 7/8" T		14 RBT	14 RBTX-S	
1" T to 1" M to 1" T		16 RBT	16 RBTX-S	

PARKER

SBT TEE

FLARED TUBE CONNECTION
TO FLARED TUBE CONNECTION
TO MALE PIPE THREADS

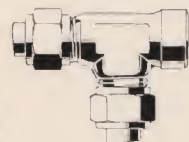


		TRIPLE TRIPLE-LOK		
		Brass*	Steel	Stainless (Type 316)
SIZE	Inches	Assembly Part No.	Assembly Part No.	Assembly Part No.
1/4" T to 1/4" T to 1/8" M		4 SBT	4 SBTX-S	4 SBTX-SS
3/8" T to 3/8" T to 1/8" M		5 SBT	5 SBTX-S	
3/8" T to 3/8" T to 1/4" M		6 SBT	6 SBTX-S	6 SBTX-SS
1/2" T to 1/2" T to 3/8" M		8 SBT	8 SBTX-S	8 SBTX-SS
5/8" T to 5/8" T to 1/2" M		10 SBT	10 SBTX-S	
3/4" T to 3/4" T to 3/4" M		12 SBT	12 SBTX-S	
7/8" T to 7/8" T to 3/4" M		14 SBT	14 SBTX-S	
1" T to 1" T to 1" M		16 SBT	16 SBTX-S	

PARKER

MBT TEE

FLARED TUBE CONNECTION
TO FEMALE PIPE THREADS
TO FLARED TUBE CONNECTION



PARKER

JBT TEE

FLARED TUBE CONNECTIONS
—ALL PORTS



		TRIPLE TRIPLE-LOK		
		Brass*	Steel	Stainless (Type 316)
SIZE	Inches	Assembly Part No.	Assembly Part No.	Assembly Part No.
1/8" T to 1/8" T to 1/8" T		2 JBT		
3/16" T to 3/16" T to 3/16" T		3 JBT		
1/4" T to 1/4" T to 1/4" T		4 JBT	4 JBTX-S	4 JBTX-SS
5/16" T to 5/16" T to 5/16" T		5 JBT	5 JBTX-S	
3/8" T to 3/8" T to 3/8" T		6 JBT	6 JBTX-S	6 JBTX-SS
1/2" T to 1/2" T to 1/2" T		8 JBT	8 JBTX-S	8 JBTX-SS
5/8" T to 5/8" T to 5/8" T		10 JBT	10 JBTX-S	10 JBTX-SS
3/4" T to 3/4" T to 3/4" T		12 JBT	12 JBTX-S	12 JBTX-SS
7/8" T to 7/8" T to 7/8" T		14 JBT	14 JBTX-S	
1" T to 1" T to 1" T		16 JBT	16 JBTX-S	
1 1/4" T to 1 1/4" T to 1 1/4" T			20 JBTX-S	

PARKER

OBT TEE

FLARED TUBE CONNECTION
TO FLARED TUBE CONNECTION
TO FEMALE PIPE THREADS



		TRIPLE TRIPLE-LOK	
		Brass*	Steel
SIZE	Inches	Assembly Part No.	Assembly Part No.
1/4" T to 1/4" T to 1/8" F		4 OBT	4 OBTX-S
3/8" T to 3/8" T to 1/8" F		5 OBT	
3/8" T to 3/8" T to 1/4" F		6 OBT	6 OBTX-S
1/2" T to 1/2" T to 3/8" F		8 OBT	8 OBTX-S
5/8" T to 5/8" T to 1/2" F		10 OBT	10 OBTX-S
3/4" T to 3/4" T to 3/4" F		12 OBT	12 OBTX-S
7/8" T to 7/8" T to 3/4" F		14 OBT	
1" T to 1" T to 1" F		16 OBT	16 OBTX-S

		TRIPLE TRIPLE-LOK	
		Brass*	Steel
SIZE	Inches	Assembly Part No.	Assembly Part No.
1/4" T to 1/8" F to 1/4" T		4 MBT	4 MBTX-S
3/8" T to 1/8" F to 3/8" T		5 MBT	
3/8" T to 1/4" F to 3/8" T		6 MBT	6 MBTX-S
1/2" T to 3/8" F to 1/2" T		8 MBT	8 MBTX-S
5/8" T to 1/2" F to 5/8" T		10 MBT	10 MBTX-S
3/4" T to 3/4" F to 3/4" T		12 MBT	12 MBTX-S
7/8" T to 3/4" F to 7/8" T		14 MBT	
1" T to 1" F to 1" T		16 MBT	16 MBTX-S

*Available in XX Extra Heavy (add -XX to Assembly Part No.)

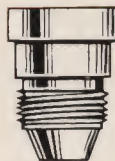
PIPE • TUBE • VALVES • FITTINGS



PARKER

TRT TUBE END REDUCER

attached with standard BTX nut to fitting tube end—then coupled to reduced size tubing with corresponding size BTX nut and TX sleeve.



TUBE END REDUCTION Inches	TRIPLE		TRIPLE-LOK	
	Brass		Steel	
	Assembly Part No.		Assembly Part No.	
3/8" T to 1/4" T	6-4 TRT		6-4 TRTX-S	
1/2" T to 1/4" T	8-4 TRT		8-4 TRTX-S	
1/2" T to 3/8" T	8-6 TRT		8-6 TRTX-S	
5/8" T to 3/8" T	10-6 TRT		10-6 TRTX-S	
3/4" T to 1/4" T	12-4 TRT		12-4 TRTX-S	
3/4" T to 3/8" T	12-6 TRT		12-6 TRTX-S	
3/4" T to 1/2" T	12-8 TRT		12-8 TRTX-S	
1" T to 3/4" T	16-12 TRT		16-12 TRTX-S	

Tube end reducer not manufactured in stainless and aluminum.

PARKER

BT NUT

USED WITH T SLEEVE ON TRIPLE TUBE COUPLINGS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/8" T	2 BT	2 BTX-S		
3/16" T	3 BT	3 BTX-S		
1/4" T	4 BT	4 BTX-S	4 BTX-SS	
5/16" T	5 BT	5 BTX-S	5 BTX-SS	
3/8" T	6 BT	6 BTX-S	6 BTX-SS	
7/16" T	7 BT	7 BTX-S		
1/2" T	8 BT	8 BTX-S	8 BTX-SS	
5/8" T	10 BT	10 BTX-S	10 BTX-SS	
3/4" T	12 BT	12 BTX-S	12 BTX-SS	
7/8" T	14 BT	14 BTX-S		
1" T	16 BT	16 BTX-S	16 BTX-SS	
1 1/4" T	20 BT	20 BTX-S		
1 1/2" T	24 BT	24 BTX-S		

* Available in XX Extra Heavy (add -XX to Assembly Part No.)

† XX Extra Heavy available in Brass (Assembly Part No. becomes T-XX)

PARKER

PNT PLUG

SCREWS INTO BT NUT TO PLUG THE END OF A LINE



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Brass*		Steel	
	Assembly Part No.		Assembly Part No.	
1/8" T	2 PNT		2 PNTX-S	
3/16" T	3 PNT		3 PNTX-S	
1/4" T	4 PNT		4 PNTX-S	
5/16" T	5 PNT		5 PNTX-S	
3/8" T	6 PNT		6 PNTX-S	
1/2" T	8 PNT		8 PNTX-S	
5/8" T	10 PNT		10 PNTX-S	
3/4" T	12 PNT		12 PNTX-S	

PARKER

T SLEEVE

USED WITH BT NUT ON TRIPLE TUBE COUPLINGS



SIZE Inches	TRIPLE		TRIPLE-LOK	
	Copper Silicon†	Steel	Stainless (Type 316)	
	Assembly Part No.	Assembly Part No.	Assembly Part No.	
1/8" T	2 T-CS	2 TX-S		
3/16" T	3 T-CS	3 TX-S		
1/4" T	4 T-CS	4 TX-S	4 TX-SS	
5/16" T	5 T-CS	5 TX-S	5 TX-SS	
3/8" T	6 T-CS	6 TX-S	6 TX-SS	
7/16" T	7 T-CS	7 TX-S		
1/2" T	8 T-CS	8 TX-S	8 TX-SS	
5/8" T	10 T-CS	10 TX-S	10 TX-SS	
3/4" T	12 T-CS	12 TX-S	12 TX-SS	
7/8" T	14 T-CS	14 TX-S	14 TX-SS	
1" T	16 T-CS	16 TX-S	16 TX-SS	
1 1/4" T	20 T-CS	20 TX-S		
1 1/2" T	24 T-CS	24 TX-S		

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PIPE • TUBE • VALVES • FITTINGS

Cold Drawn Seamless STEEL HYDRAULIC TUBING

In 16-Foot Straight Lengths

Selected for Bending and Flaring Qualities for Use with Parker Fittings

O.D. Inches	WALL Inches	WEIGHT PER FOOT In Pounds	CALCULATED BURSTING PRESSURE p.s.i.	O. D. Inches	WALL Inches	WEIGHT PER FOOT In Pounds	CALCULATED BURSTING PRESSURE p.s.i.
1/8"	.028	.029	22,400	1/2"	.072	.329	14,400
3/16"	.028	.048	15,000	5/8"	.049	.301	7,840
1/4"	.035	.080	14,000	3/4"	.065	.389	10,400
5/16"	.049	.105	15,600	7/8"	.083	.480	13,280
3/8"	.035	.104	11,200	1"	.049	.367	6,530
1/2"	.049	.138	15,650	1 1/4"	.065	.475	8,660
5/8"	.035	.127	9,330	1 1/2"	.095	.665	12,660
3/4"	.049	.171	13,100	1 3/4"	.065	.562	7,425
7/8"	.058	.196	15,460	2"	.065	.649	6,500
1"	.035	.174	7,000	2 1/2"	.109	1.037	10,900
1 1/8"	.049	.236	9,800				

Properties: Carbon Content—Usually under .10%
Yield Strength—40,000 P.S.I. Maximum
Tensile Strength—60,000 P.S.I. Maximum
Elongation in 2"—35% Minimum

PARKER BRASS TUBE CLIPS

3 types in 7 sizes available from stock. See page 198 for sizes and descriptions.

PARKER FERULOK (FLARELESS) TUBE FITTINGS

The flareless fitting with the **visible** "bite."

Recommended especially for heavy wall tubing.

Made in steel with dryseal (N.P.T.F.) pipe threads.

Readily passes rigid qualification tests of Specification AN-F-47. Fully conforms to Joint Industry Committee hydraulic standards.

Has Underwriters' Laboratory approval for all applications—gases, hazardous liquids and refrigeration.

Wedging action of ferrule, when drawn down by nut, forms perfect seal between ferrule and body and between ferrule and tube.

No special tools required; safety shoulder on ferrule prevents overtightening.



FERULOK

CODE: M—Male Pipe Thread. F—Female Pipe Thread. T—Tube O.D.

GBU

FEMALE CONNECTOR



SIZE Inches	Assembly Part No.
1/4" T to 1/8" F	4 GBU-S
5/16" T to 1/8" F	5 GBU-S
3/8" T to 1/4" F	6 GBU-S
1/2" T to 3/8" F	8 GBU-S
5/8" T to 1/2" F	10 GBU-S
3/4" T to 3/4" F	12 GBU-S
1" T to 1" F	16 GBU-S

HBU

UNION



SIZE Inches	Assembly Part No.
1/4" T to 1/4" T	4 HBU-S
5/16" T to 5/16" T	5 HBU-S
3/8" T to 3/8" T	6 HBU-S
1/2" T to 1/2" T	8 HBU-S
5/8" T to 5/8" T	10 HBU-S
3/4" T to 3/4" T	12 HBU-S
1" T to 1" T	16 HBU-S

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BRONZE
COPPER

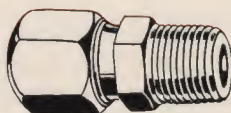
MONEL
NICKEL
INCONEL

STAIN-
LESS
121-
127

PARKER
FITTINGS
128-
142

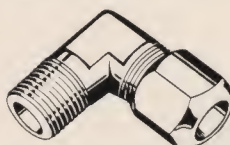
SARAN
143-
145

FBU MALE CONNECTOR



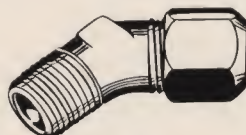
SIZE Inches	Assembly Part No.
1/4" T to 1/8" M	4 FBU-S
1/4" T to 1/4" M	4-4 FBU-S
3/16" T to 1/8" M	5 FBU-S
3/16" T to 1/4" M	6 FBU-S
3/8" T to 3/8" M	6-6 FBU-S
3/8" T to 1/2" M	6-8 FBU-S
1/2" T to 3/8" M	8 FBU-S
1/2" T to 1/4" M	8-4 FBU-S
1/2" T to 1/2" M	8-8 FBU-S
3/8" T to 1/2" M	10 FBU-S
3/4" T to 3/4" M	12 FBU-S
1" T to 1" M	16 FBU-S

CBU MALE ELBOW



SIZE Inches	Assembly Part No.
1/4" T to 1/8" M	4 CBU-S
1/4" T to 1/4" M	4-4 CBU-S
3/16" T to 1/8" M	5 CBU-S
3/16" T to 1/4" M	6 CBU-S
1/2" T to 3/8" M	8 CBU-S
1/2" T to 1/2" M	8-8 CBU-S
3/8" T to 1/2" M	10 CBU-S
3/4" T to 3/4" M	12 CBU-S
1" T to 1" M	16 CBU-S

VBU MALE ELBOW 45°



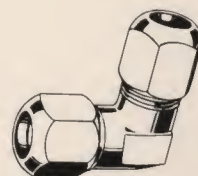
SIZE Inches	Assembly Part No.
1/4" T to 1/8" M	4 VBU-S
3/16" T to 1/8" M	5 VBU-S
3/16" T to 1/4" M	6 VBU-S
1/2" T to 3/8" M	8 VBU-S
3/8" T to 1/2" M	10 VBU-S
3/4" T to 3/4" M	12 VBU-S
1" T to 1" M	16 VBU-S

DBU FEMALE ELBOW



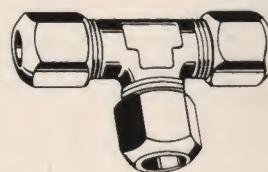
SIZE Inches	Assembly Part No.
1/4" T to 1/8" F	4 DBU-S
3/16" T to 1/8" F	5 DBU-S
3/8" T to 1/4" F	6 DBU-S
1/2" T to 3/8" F	8 DBU-S
3/8" T to 1/2" F	10 DBU-S
3/4" T to 3/4" F	12 DBU-S
1" T to 1" F	16 DBU-S

EBU UNION ELBOW



SIZE Inches	Assembly Part No.
1/4" T to 1/4" T	4 EBU-S
3/16" T to 3/16" T	5 EBU-S
3/8" T to 3/8" T	6 EBU-S
1/2" T to 1/2" T	8 EBU-S
3/8" T to 5/8" T	10 EBU-S
3/4" T to 3/4" T	12 EBU-S
1" T to 1" T	16 EBU-S

JBU TEE



SIZE Inches	Assembly Part No.
1/4" T to 1/4" T to 1/4" T	4 JBU-S
3/16" T to 3/16" T to 3/16" T	5 JBU-S
3/8" T to 3/8" T to 3/8" T	6 JBU-S
1/2" T to 1/2" T to 1/2" T	8 JBU-S
3/8" T to 3/8" T to 3/8" T	10 JBU-S
3/4" T to 3/4" T to 3/4" T	12 JBU-S



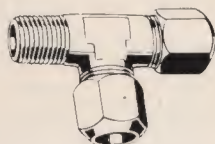
PIPE • TUBE • VALVES • FITTINGS



MBU

FEMALE RUN TEE

SIZE Inches	Assembly Part No.
1/4" T to 1/8" F to 1/4" T	4 MBU-S
3/16" T to 1/8" F to 3/16" T	5 MBU-S
3/8" T to 1/4" F to 3/8" T	6 MBU-S
1/2" T to 3/8" F to 1/2" T	8 MBU-S
5/8" T to 1/2" F to 5/8" T	10 MBU-S
3/4" T to 3/4" F to 3/4" T	12 MBU-S



RBU

MALE RUN TEE

SIZE Inches	Assembly Part No.
1/4" T to 1/8" M to 1/4" T	4 RBU-S
3/16" T to 1/8" M to 3/16" T	5 RBU-S
3/8" T to 1/4" M to 3/8" T	6 RBU-S
1/2" T to 3/8" M to 1/2" T	8 RBU-S
5/8" T to 1/2" M to 5/8" T	10 RBU-S
3/4" T to 3/4" M to 3/4" T	12 RBU-S



TU

FERRULE

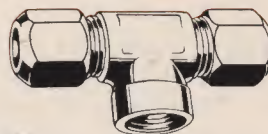
SIZE Inches	Assembly Part No.
1/4" T	4 TU-S
3/16" T	5 TU-S
3/8" T	6 TU-S
1/2" T	8 TU-S
5/8" T	10 TU-S
3/4" T	12 TU-S
1" T	16 TU-S



BAU

REDUCER NUT

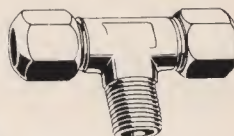
SIZE Inches	Assembly Part No.
3/8" T to 1/4" T	6-4 BAU-S
1/2" T to 1/4" T	8-4 BAU-S
1/2" T to 3/8" T	8-6 BAU-S
3/8" T to 3/8" T	10-6 BAU-S
5/8" T to 1/2" T	10-8 BAU-S
3/4" T to 3/8" T	12-6 BAU-S
3/4" T to 1/2" T	12-8 BAU-S
3/4" T to 5/8" T	12-10 BAU-S
1" T to 1/2" T	16-8 BAU-S
1" T to 3/8" T	16-10 BAU-S
1" T to 3/4" T	16-12 BAU-S



OBU

FEMALE OUTLET TEE

SIZE Inches	Assembly Part No.
1/4" T to 1/4" T to 1/8" F	4 OBU-S
3/16" T to 3/16" T to 1/8" F	5 OBU-S
3/8" T to 3/8" T to 1/4" F	6 OBU-S
1/2" T to 1/2" T to 3/8" F	8 OBU-S
5/8" T to 5/8" T to 1/2" F	10 OBU-S
3/4" T to 3/4" T to 3/4" F	12 OBU-S



SBU

MALE OUTLET TEE

SIZE Inches	Assembly Part No.
1/4" T to 1/4" T to 1/8" M	4 SBU-S
3/16" T to 3/16" T to 1/8" M	5 SBU-S
3/8" T to 3/8" T to 1/4" M	6 SBU-S
1/2" T to 1/2" T to 3/8" M	8 SBU-S
5/8" T to 5/8" T to 1/2" M	10 SBU-S
3/4" T to 3/4" T to 3/4" M	12 SBU-S



BU

NUT

SIZE Inches	Assembly Part No.
1/4" T	4 BU-S
3/16" T	5 BU-S
3/8" T	6 BU-S
1/2" T	8 BU-S
5/8" T	10 BU-S
3/4" T	12 BU-S
1" T	16 BU-S



TAU

REDUCER RING

SIZE Inches	Assembly Part No.
3/8" T to 1/4" T	6-4 TAU-S
1/2" T to 1/4" T	8-4 TAU-S
1/2" T to 3/8" T	8-6 TAU-S
3/8" T to 3/8" T	10-6 TAU-S
5/8" T to 1/2" T	10-8 TAU-S
3/4" T to 3/8" T	12-6 TAU-S
3/4" T to 1/2" T	12-8 TAU-S
3/4" T to 5/8" T	12-10 TAU-S
1" T to 1/2" T	16-8 TAU-S
1" T to 3/8" T	16-10 TAU-S
1" T to 3/4" T	16-12 TAU-S

PIPE • TUBE • VALVES • FITTINGS



PARKER PIPE FITTINGS

PARKER Pipe Fittings are recommended especially for use with PARKER Tube Fittings when pipe connection adapters are necessary.

For instance, the reducing bushing (Part No. 912) and the reducing connection (Part No. FG) will be found useful with PARKER Tube Fittings in effecting connections involving unusual reductions between pipe size and tube outside diameter.

FG REDUCING CONNECTOR



FEMALE TO REDUCED MALE
PIPE THREAD

Brass		Steel
FEMALE PIPE THREAD Inches	MALE PIPE THREAD Inches	Assembly Part No.
1/2"	3/8"	1/2" x 3/8" FG-S
1/2"	1/4"	1/2" x 1/4" FG-S
1/2"	1/8"	1/2" x 1/8" FG-S
3/4"	1/2"	3/4" x 1/2" FG-S
3/4"	1/4"	3/4" x 1/4" FG-S
1"	3/4"	1" x 3/4" FG-S
1"	1/2"	1" x 1/2" FG-S

911 PIPE NIPPLE



MALE PIPE THREAD—BOTH PORTS

Brass		Steel
MALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	911-1	911-1-S
1/4"	911-2	911-2-S
3/8"	911-3	911-3-S
1/2"	911-4	911-4-S
3/4"	911-6	911-6-S
1"	911-8	911-8-S
1 1/4"	911-10	..

895 HOLLOW HEX PLUG



MALE PIPE THREAD

Brass		Steel
MALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	895-100	895-100-S
1/4"	895-101	895-101-S

912 REDUCING BUSHING



MALE TO REDUCED FEMALE
PIPE THREAD

Brass		Steel	
MALE PIPE THREAD Inches	FEMALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/4"	1/8"	912-1	912-1-S
3/8"	1/4"	912-2	912-2-S
3/8"	1/8"	912-3	912-3-S
1/2"	3/8"	912-4	912-4-S
1/2"	1/4"	912-5	912-5-S
1/2"	1/8"	912-6	912-6-S
3/4"	1/2"	912-7	912-7-S
3/4"	3/8"	912-8	912-8-S
3/4"	1/4"	912-9	912-9-S
1"	3/4"	912-10	912-10-S
1"	1/2"	912-11	912-11-S
1"	3/8"	912-12	912-12-S
1 1/4"	3/4"	912-13	912-13-S

910 PIPE CONNECTOR



FEMALE PIPE THREAD—BOTH PORTS

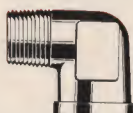
Brass		Steel
FEMALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	910-1	910-1-S
1/4"	910-2	910-2-S
3/8"	910-3	910-3-S
1/2"	910-4	910-4-S
3/4"	910-6	910-6-S
1"	910-8	910-8-S



PIPE • TUBE • VALVES • FITTINGS

914 STREET ELBOW

MALE TO FEMALE PIPE THREADS



	Brass	Steel
PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	914-1	914-1-S
1/4"	914-2	914-2-S
3/8"	914-3	914-3-S
1/2"	914-4	914-4-S
3/4"	914-6	914-6-S
1"	914-8	914-8-S

917 PIPE TEE

FEMALE PIPE THREAD—ALL 3 PORTS



	Brass	Steel
FEMALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	917-1	917-1-S
1/4"	917-2	917-2-S
3/8"	917-3	917-3-S
1/2"	917-4	917-4-S
3/4"	917-6	917-6-S
1"	917-8	917-8-S
1 1/4"	917-10	917-10-S

915 STREET ELBOW

45° MALE TO FEMALE PIPE THREADS



	Brass	Steel
PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	915-1	915-1-S
1/4"	915-2	915-2-S
3/8"	915-3	915-3-S
1/2"	915-4	915-4-S
3/4"	915-6	915-6-S
1"	..	915-8-S
1 1/4"	..	915-8-S

918 PIPE CROSS

FEMALE PIPE THREAD—ALL 4 PORTS



	Brass	Steel
FEMALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	918-1	918-1-S
1/4"	918-2	918-2-S
3/8"	..	918-3-S
1/2"	..	918-4-S

916 PIPE ELBOW

FEMALE PIPE THREAD—BOTH PORTS



	Brass	Steel
FEMALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	916-1	916-1-S
1/4"	916-2	916-2-S
3/8"	916-3	916-3-S
1/2"	916-4	916-4-S
3/4"	916-6	916-6-S
1"	916-8	916-8-S
1 1/4"	..	916-8-S

913 SQUARE HEAD PLUG

MALE PIPE THREAD



	Brass	Steel
MALE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/8"	913-1	913-1-S
1/4"	913-2	913-2-S
3/8"	913-3	913-3-S
1/2"	913-4	913-4-S
3/4"	913-6	..
1"	913-8	..

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

SARAN
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145

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS
121-
127

PARKER
FITTINGS
128-
142

DATA

INDEX

PARKER VALVES

These female pipe threads may also be readily adapted to tube ends by use of proper size brass FBT fittings.

When tube outlets are desired, the use of a

4-4 FBT connector will permit hook-up of $\frac{1}{4}$ " tubing

5-4 FBT connector will permit hook-up of $\frac{5}{16}$ " tubing

6 FBT connector will permit hook-up of $\frac{3}{8}$ " tubing

To reduce a $\frac{1}{4}$ " female pipe thread to $\frac{1}{8}$ " female pipe thread use a 912-1 reducing bushing.

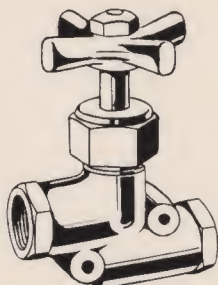
A 911-2 pipe nipple will adapt to $\frac{1}{4}$ " male pipe thread. FBT connectors are listed on page 131.

912-1 reducing bushings are listed on page 138.

911-2 pipe nipples are listed on page 138.

NEEDLE VALVES

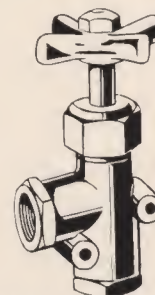
126 OFFSET



For metering or shut-off. Rising stem. FPT both ports. Recommended for working pressures up to 3,000 p.s.i. at 350° F.

Brass	
SIZE PIPE THREAD Inches	Assembly Part No.
$\frac{1}{4}$ "	126- $\frac{1}{4}$

128 ANGLE

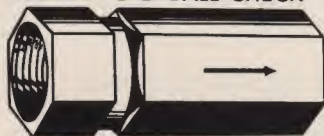


For metering or shut-off. Rising stem. FPT both ports. Recommended for working pressures up to 3,000 p.s.i. at 350° F.

Brass	
SIZE PIPE THREAD Inches	Assembly Part No.
$\frac{1}{4}$ "	128- $\frac{1}{4}$

CHECK VALVES

404 GG BALL CHECK

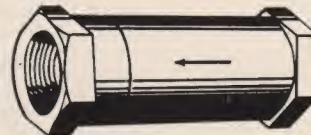


Brass Body with Stainless Steel Ball and Spring.

FPT inlet and outlet. Recommended for intermittent service at pressures up to 500 p.s.i. Opening pressure—2 to 8 p.s.i.

Brass	
SIZE PIPE THREAD Inches	Assembly Part No.
$\frac{1}{8}$ "	404 GG- $\frac{1}{8}$
$\frac{1}{4}$ "	404 GG- $\frac{1}{4}$
$\frac{3}{8}$ "	404 GG- $\frac{3}{8}$
$\frac{1}{2}$ "	404 GG- $\frac{1}{2}$
$\frac{3}{4}$ "	404 GG- $\frac{3}{4}$

475 GG CONE CHECK



FPT inlet and outlet. Suitable for continuous service in high velocity systems at pressures up to 3,000 p.s.i. Opening pressure—2 to 8 p.s.i.

Steel	
SIZE PIPE THREAD Inches	Assembly Part No.
$\frac{1}{8}$ "	475 GG- $\frac{1}{8}$ S
$\frac{1}{4}$ "	475 GG- $\frac{1}{4}$ S
$\frac{3}{8}$ "	475 GG- $\frac{3}{8}$ S
$\frac{1}{2}$ "	475 GG- $\frac{1}{2}$ S
$\frac{3}{4}$ "	475 GG- $\frac{3}{4}$ S



PIPE • TUBE • VALVES • FITTINGS

CHECK VALVES—Continued

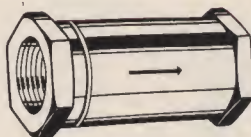
6249 CONE CHECK



Tube connection inlet and outlet (37° flare angle). Suitable for continuous service in high velocity systems at pressures up to 3,000 p.s.i. Opening pressure—2 to 8 p.s.i.

Steel		
SIZE TUBE O.D. Inches	MAXIMUM TUBE WALL Inches	Assembly Part No.
1/4"	.060	6249- 4S
3/16"	.060	6249- 5S
3/8"	.060	6249- 6S
1/2"	.075	6249- 8S
5/8"	.095	6249-10S
3/4"	.109	6249-12S
1"	.120	6249-16S

525 GG SWING CHECK

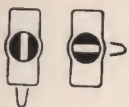


FPT inlet and outlet. Extremely low pressure drop. Recommended for intermittent service at temperatures up to 180° F. Opening pressure—approx. 1/2 p.s.i.

Brass		
SIZE PIPE THREAD Inches	Assembly Part No.	WORKING PRESSURE p.s.i.
1/8"	525 GG-1/8	500
1/4"	525 GG-1/4	500
3/8"	525 GG-3/8	500
1/2"	525 GG-1/2	350

PLUG VALVES

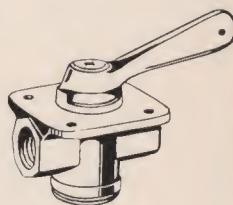
PORT OPENINGS



709 GG TWO-WAY, FLANGED

Flanged shut-off. Both ports FPT. 90° handle turn.

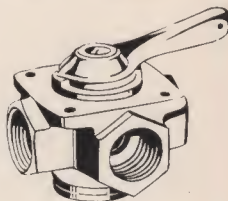
SIZE PIPE THREAD Inches	Assembly Part No.
1/4"	709 GG-1/4



710-3 THREE-WAY, FLANGED

Flanged selector—All ports FPT. 90° handle turn. Choice of two plug drillings.

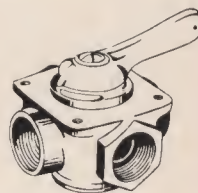
SIZE PIPE THREAD Inches	Assembly Part No.	Assembly Part No.
1/4"	710-3-1/4	710-13-1/4



710-6 FOUR-WAY, FLANGED

Flanged reversing—All ports FPT.

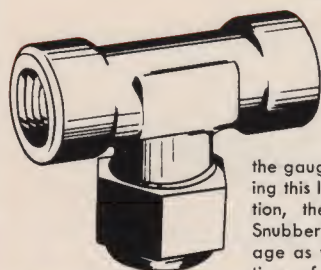
SIZE PIPE THREAD Inches	Assembly Part No.
1/4"	710-6-1/4



PIPE • TUBE • VALVES • FITTINGS



6011 PRESSURE GAUGE SNUBBER



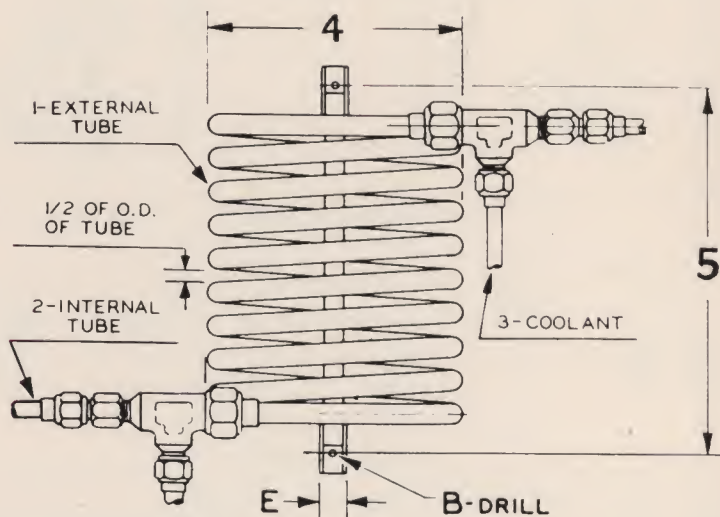
thus assuring more accurate readings. Snubbing chamber is mounted on side for easy adjustment without disturbing

the gauge lines. By dampening this line shock and vibration, the PARKER Pressure Snubber prevents such damage as well as wild fluctuations of the gauge pointer,

line connections. Three different size pins (one of which is stored in blank hole) offer six gradations of dampening adjustment. Working pressure up to 5,000 p.s.i. Both connecting ports FPT. Body—high strength forging. Pins—stainless steel.

	Brass	Stainless Steel
FPT PORTS Inches	Assembly Part No.	Assembly Part No.
1/4"	6011-1/4	6011-1/4 SS
1/2"	6011-1/2	6011-1/2 SS

3101 DUAL HEAT TRANSFER COIL



PARKER Dual Heat Transfer Coils are highly recommended for cooling steam or water test samples on boilers of all ratings. Also used extensively in refrigeration equipment, oil stills, hydraulic circuits for cooling oil—wherever efficient exchange of heat between liquids and gases is required. Outstandingly satisfactory under high temperatures and high pressures. Coils are equipped with heavy duty terminal fittings. Outer coil utilizes 19½ feet of tubing, inner coil 20 feet. Larger or smaller coils are available on special order.

Coil No. 3101-5 for pressures up to 1000 p.s.i., temperatures to 700° F. Both coils copper. All fittings brass.

Coil No. 3101-6 for pressures up to 2000 p.s.i., temperatures to 1500° F. Outer coil copper. Inner coil stainless steel. Coil terminal fittings—steel. End fittings—stainless steel.

Copper Inner Coils	Stainless Steel Inner Coil	1 OUTER TUBE O.D. Inches	2 INNER TUBE O.D. Inches	3 COOLANT TUBE O.D. Inches	4 COIL WIDTH Inches	5 HEIGHT APPROX. Inches	NO. OF COILS	AREA OUTER COIL Sq. Ft.	AREA INNER COIL Sq. Ft.
Assembly Part No.	Assembly Part No.								
3101-5, 4-8-6XX	..	1/2"	1/4"	3/8"	5"	12"	15	2.62	1.41
3101-5, 6-12-10XX	..	3/4"	3/8"	5/8"	8 1/2"	12"	9	3.93	2.11
3101-5, 8-16-12XX	3101-6, 8-16-12XX	1"	1/2"	3/4"	8"	15"	10	5.24	2.81



PIPE • TUBE • VALVES • FITTINGS

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SARAN PLASTIC PIPE FITTINGS	Page No.
AND NIPPLES	144

SARAN PLASTIC PIPE, TUBE AND FITTINGS

Saran, a chemically resistant thermoplastic, is characterized in pipe, tube and fittings by its toughness, resistance to corrosion and wear, durability and low cost. Another important feature is its light weight (approximately one-quarter that of comparable sizes of iron pipe).

SARAN PLASTIC TUBE

In Random 25-, 50-, 100-Foot Coils

O. D. Inches	WALL THICK- NESS Inches	APPROX. WEIGHT Lbs./100 Ft.	BURSTING PRESSURE Lbs./Sq. In.	ASSUMED SAFETY WORKING PRESSURE Lbs./Sq. In.	O. D. Inches	WALL THICK- NESS Inches	APPROX. WEIGHT Lbs./100 Ft.	BURSTING PRESSURE Lbs./Sq. In.	ASSUMED SAFETY WORKING PRESSURE Lbs./Sq. In.
1/8"	.015	.390	900	...	3/8"	.062	4.617	1250	250
	.031	.692	1900	380	7/16"	.031	3.000	...	...
3/16"	.015	.611	625	...		.045	4.174	...	...
	.031	1.154	1250	250		.062	5.540	...	...
	.045	1.516	1750	325	1/2"	.031	3.463	425	85
	.062	1.846	2600	520		.045	4.839	630	126
1/4"	.031	1.616	900	180		.062	6.463	900	180
	.045	2.180	1350	270	5/8"	.031	4.386	335	67
	.062	2.770	1900	380		.045	6.170	490	98
3/8"	.031	2.077	700	140		.062	8.310	675	135
	.045	2.844	900	180	3/4"	.031	5.310	...	...
	.062	3.694	1700	340		.045	7.499	410	82
1/2"	.031	2.539	575	115		.062	10.086	575	115
	.045	3.550	800	160					

SARAN BLACK PLASTIC PIPE

In 10-Foot Lengths
(Unthreaded)

I.P.S. SIZE	O. D. Inches	I. D. Inches	APPROX. WEIGHT Lbs./Ft.	BURSTING PRESSURE Lbs./Sq. In.	ASSUMED SAFETY WORKING PRESSURE Lbs./Sq. In.	I.P.S. SIZE	O. D. Inches	I. D. Inches	APPROX. WEIGHT Lbs./Ft.	BURSTING PRESSURE Lbs./Sq. In.	ASSUMED SAFETY WORKING PRESSURE Lbs./Sq. In.
1/2"	.840	.546	.236	1300	260	2"	2.375	1.939	1.090	620	125
3/4"	1.050	.742	.320	1060	210	2 1/2"	2.875	2.277	1.805	570	115
1"	1.315	.957	.475	970	190	3"	3.500	2.842	2.480	510	105
1 1/4"	1.660	1.278	.650	820	160	4"	4.500	3.749	3.760	460	90
1 1/2"	1.900	1.500	.790	740	150						

Saran Plastic Pipe can be cut or threaded if required.

FASTEN-
ERS

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

DATA

STAIN-
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PIPE • TUBE • VALVES • FITTINGS



SARAN PLASTIC PIPE FITTINGS MOLDED

**SARAN BLACK PIPE
90° ELBOW**



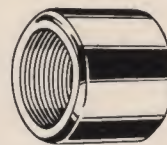
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	11.3
3/4"	15.4
1"	24.2
1 1/4"	34.8
1 1/2"	45.4
2"	68.2

**SARAN BLACK PIPE
45° ELBOW**



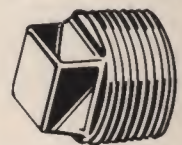
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	11.3
3/4"	15.4
1"	24.2
1 1/4"	34.8
1 1/2"	45.4
2"	68.2

**SARAN BLACK PIPE
END CAP**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	6.0
3/4"	8.0
1"	12.3
1 1/4"	18.9
1 1/2"	24.5
2"	35.5

**SARAN BLACK PIPE
PLUG—MALE I. P. S.**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8"	.375
1/4"	.775
3/4"	1.164
1/2"	2.290
3/4"	3.604
1"	4.500

**SARAN BLACK PIPE
FLANGE**



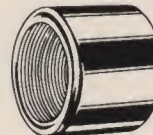
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	24.5
3/4"	32.8
1"	43.1
1 1/4"	55.0
1 1/2"	66.7
2"	100.0

**SARAN BLACK PIPE
BLIND FLANGE**



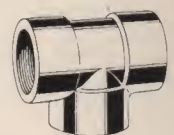
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	25.8
3/4"	35.8
1"	47.8
1 1/4"	62.0
1 1/2"	76.5
2"	115.0

**SARAN BLACK PIPE
STRAIGHT COUPLING**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	7.1
3/4"	9.0
1"	13.8
1 1/4"	19.8
1 1/2"	25.0
2"	44.2

**SARAN BLACK
PIPE TEES**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2"	15.3
3/4"	21.6
1"	33.9
1 1/4"	59.9
1 1/2"	66.5
2"	101.0

SARAN BLACK PIPE REDUCERS



SIZE Inches	APPROX. WT. Lbs./100 Pcs.	SIZE Inches	APPROX. WT. Lbs./100 Pcs.
3/4" x 1/2"	11.2	1 1/2" x 1"	29.3
1" x 1/2"	16.0	1 1/2" x 1 1/4"	28.4
1" x 3/4"	15.7	2" x 1/2"	44.1
1 1/4" x 1/2"	24.3	2" x 3/4"	42.8
1 1/4" x 3/4"	24.8	2" x 1"	45.5
1 1/4" x 1"	23.6	2" x 1 1/4"	46.3
1 1/2" x 1/2"	28.9	2" x 1 1/2"	49.9
1 1/2" x 3/4"	29.5		

A complete stock of Nipples in lengths to 12" available in I. P. S. sizes from 1/2" to 2".

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
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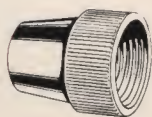
WHITEHEAD WAREHOUSE ITEMS



PIPE • TUBE • VALVES • FITTINGS

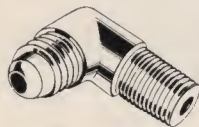
SARAN PLASTIC TUBE FITTINGS

***SARAN
COUPLING NUT**



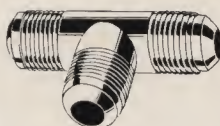
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8"	.658
3/16"	.614
1/4"	.717
5/16"	.788
3/8"	1.206
7/16"	1.568
1/2"	2.728
5/8"	3.150
3/4"	7.423

**SARAN ELBOW—O. D.
TUBE TO MALE I. P. S.**



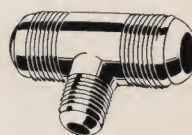
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8" x 1/8"	.742
3/16" x 1/8"	.742
1/4" x 1/8"	.922
5/16" x 1/8"	1.122
3/8" x 1/4"	2.000
3/8" x 3/8"	2.618
7/16" x 1/4"	2.110
1/2" x 3/8"	2.959
5/8" x 1/2"	5.091
3/4" x 1/2"	6.222

**SARAN "T" FITTINGS—
SIZE O. D. TUBE**



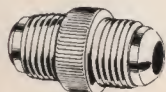
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8"	.931
3/16"	.931
1/4"	1.256
5/16"	1.896
3/8"	3.177
7/16"	3.762
1/2"	5.181
5/8"	6.853
3/4"	11.066

**SARAN REDUCING TEES
—SIZE O. D. TUBE**



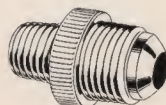
SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/2" x 3/8" x 3/8"	3.960
1/2" x 3/8" x 1/2"	4.673
1/2" x 1/2" x 3/8"	4.259
3/4" x 1/2" x 1/2"	7.619
3/4" x 1/2" x 3/4"	10.090
3/4" x 3/4" x 3/8"	7.929
3/4" x 3/4" x 1/2"	8.948

**SARAN UNION COUPLING
—O. D. TO O. D. TUBE**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8" x 1/8"	.539
3/16" x 3/16"	.539
1/4" x 1/4"	.759
5/16" x 5/16"	1.023
3/8" x 3/8"	1.659
7/16" x 7/16"	2.136
1/2" x 1/2"	2.946
5/8" x 5/8"	4.101
3/4" x 3/4"	6.497

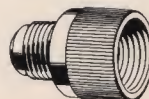
**SARAN HALF UNION
COUPLING—O. D. TUBE TO MALE I. P. S.**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
1/8" x 1/8"	.579
3/16" x 1/8"	.579
1/4" x 1/8"	.700
1/4" x 1/4"	.823
5/16" x 1/8"	.838
5/16" x 1/4"	.964
3/8" x 1/4"	1.437

SIZE Inches	APPROX. WT. Lbs./100 Pcs.
3/8" x 3/8"	1.802
7/16" x 1/4"	1.705
1/2" x 3/8"	2.618
1/2" x 1/2"	3.428
5/8" x 1/2"	3.810
3/4" x 3/4"	6.200

**HALF UNION COUPLING
(FEMALE) O. D. TUBE TO
FEMALE I. P. S.**



SIZE Inches	APPROX. WT. Lbs./100 Pcs.
3/8" x 3/8"	2.286
1/2" x 1/2"	3.971

*One coupling nut is required for each tube outlet.

←
SHEETS

←
RODS

←
SHAPES

PIPE
TUBE
VALVES
FITTINGS

TECHNICAL BULLETINS and ENGINEERING DATA

•

Every metal—every fabrication process—and almost every industrial field provides the subject matter for the multitude of technical and semi-technical literature written for your use. Even a partial listing of this information would fill many pages and possibly still not lead to the answer to your specific question. Tell us your problems and we shall select and send you the proper subject matter. Our engineering and technical sales division is at your service.

For Metals—and the Answers to Metal Problems

CALL WHITEHEAD FIRST



Fasteners *Section*



rivets

nuts

bolts

screws

pins

nails

... for fasteners section index, see next page



Call **WHITEHEAD**

First!

See inside covers
for addresses and
phone numbers.

FASTENERS

WELDING
AND
BRAZING

SPECIAL
PRODUCTS

DATA

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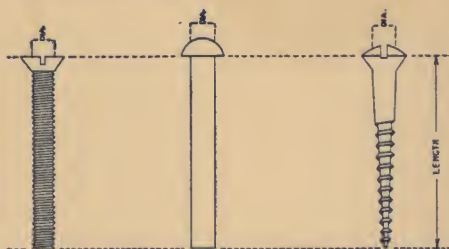
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Detailed index precedes each alloy section.

MEASUREMENT OF FASTENERS

Length of screws, bolts and rivets is measured by the depth below surface line (in inches).

Diameter of screws, bolts or rivets is measured on the body under the head (by number or inches). Wherever the diameter size is expressed as a number, in the following pages, the measurement in inches is also shown.



Fit denotes the amount of clearance between male and female threads. Except where otherwise specified, our fasteners are Class 2 fit which provides a small amount of play for fast assembly with practical maximum strength.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

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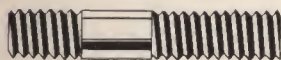
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ALCOA ALUMINUM FASTENERS are carefully engineered to conform to all standard specifications. Alcoa Fasteners stay bright and attractive—last for the lifetime of your product—eliminate ugly rust streaks—resist galvanic corrosion—and weigh only one-third as much as heavy metal fasteners. Made from strong, tested alloys to close tolerances.

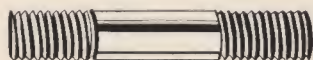
ALUMINUM STUD BOLTS AND THREADED RODS

Threaded promptly in any alloy specified from Rods in warehouse stock. (See Rod Section for sizes available.)

Studs



Type "A"—Tap End



Type "B"—Double End



Type "C"—Continuous Threads

When ordering Studs, clearly specify Type (A, B or C), Diameter, Threads per Inch and Length.

Threaded Rods

When ordering Threaded Rods, clearly specify Diameter and Length of Rods, Threads per Inch and Length of Threading.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
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FASTENERS • SCREWS • NUTS • BOLTS • ETC.



HEXAGON HEAD 24S-T4 ALUMINUM MACHINE BOLTS

American Standard Unfinished Head
With or Without Hexagon Nuts
Bright Finish—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	3/4"	13/16"	1 1/8"
HEIGHT OF HEAD	1 1/64"	13/64"	1/4"	2 1/64"	27/64"	1/2"
PACKING	100 per Box					50 per Box
Lengths						
3/4"	*	*	..	..	..	..
1"	*	*	*	*	*	..
1 1/4"	*	*	*	*	*	..
1 1/2"	*	*	*	*	*	..
1 3/4"	*	*	*	*	*	..
2"	*	*	*	*	*	*
2 1/4"	*	*	*	*	*	..
2 1/2"	*	*	*	*	*	*
3"	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*
4"	*	*	*	*	*	*

*Denotes sizes available from warehouse stocks.

ROUND HEAD 24S-T4 ALUMINUM CARRIAGE BOLTS

American Standard (Square Neck)
With or Without Hexagon Nuts
Bright Finish—Class 2 Fit



Diameter	No. 10 (3/16")	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	24	20	18	16	13
DIAMETER OF HEAD	7/16"	9/16"	1 1/16"	1 3/16"	1 1/8"
THICKNESS OF HEAD	3/32"	1/8"	5/32"	3/16"	1/4"
PACKING	100 per Box				
Lengths					
1/2"	*	..	..	..	..
3/4"	*	..	..	..	..
1"	*	*	*	*	..
1 1/4"	*	*	*	*	*
1 1/2"	*	*	*	*	*
1 3/4"	..	*	*	*	*
2"	*	*	*	*	*
2 1/2"	*	*	*	*	*
3"	*	*	*	*	*
3 1/2"	..	*	*	*	*
4"	..	*	*	*	*

*Denotes sizes available from warehouse stocks.

HEXAGON 24S-T4 ALUMINUM MACHINE SCREW NUTS

American Standard
In One Gross Boxes
Chamfered and Washer Faced
Bright Finish—Class 2 Fit

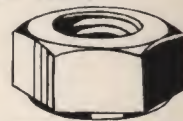


Screw Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches
4	40	1/4"	3/32"
6	32	5/16"	7/64"
8	32	1 1/32"	1/8"
10	24	3/8"	1/8"
10	*32	3/8"	1/8"
12	24	7/16"	5/32"
1 1/4"	20	7/16"	3/16"
5/16"	18	9/16"	7/32"
3/8"	16	5/8"	1/4"

*Fine threads.

HEXAGON 24S-T4 ALUMINUM BOLT NUTS

American Standard Regular
Semi-Finished—Bright Finish
Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches	PACKING
1/4"	20	7/16"	13/64"	100 per Box
5/16"	18	9/16"	1/4"	
3/8"	16	5/8"	5/16"	
7/16"	14	3/4"	23/64"	
1/2"	13	13/16"	27/64"	
5/8"	11	1"	17/32"	50 per Box
3/4"	10	1 1/8"	41/64"	
7/8"	*9	1 3/8"	3/4"	
1"	*8	1 1/2"	55/64"	

*Machine finish.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

HEXAGON 24S-T4 ALUMINUM CAP (ACORN) NUTS

In Boxes of 100

Bright Finish—Class 2 Fit



24S-T4 ALUMINUM WING NUTS

In Boxes of 100

Bright Finish—Class 2 Fit



Screw and Bolt Size	Threads Per Inches	WIDTH Inches (Across Flats)	THICKNESS Inches
6	32	3/16"	3/32"
8	32	3/16"	3/32"
10	24	3/8"	1/32"
10	*32	3/8"	1/32"
1/4"	20	7/16"	3/8"
3/16"	18	9/16"	7/16"
3/8"	16	5/8"	1/2"

*Fine threads.

Screw and Bolt Size	Threads Per Inch	APPROX. WIDTH Inches (Across Wings)	HEIGHT OF WINGS
6	32	1 1/16"	2 1/64"
8	32	1 1/16"	2 1/64"
10	24	1"	1 3/32"
10	*32	1"	1 5/32"
12	24	1"	1 5/32"
1/4"	20	1 1/8"	3 3/64"
5/16"	18	1 5/8"	5/8"
3/8"	16	1 3/4"	4 9/64"

*Fine threads.

FLAT 24S-T3 ALUMINUM WASHERS

Machine Finish



Screw Size	Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	APPROX. NO. PER POUND	PACKING
3	..	1/4"	.112	.020	12500	Boxes of 1000
4	..	5/16"	.140	.025	6670	
6	..	3/8"	.150	.032	3560	
8	..	7/16"	.170	.040	2090	
10	3/16"	1/2"	.195	.040	1560	
12	..	5/8"	.227	.040	1175	Boxes of 100
1/4"	1/4"	1 1/16"	.260	.051	670	
5/16"	5/16"	7/8"	.343	.064	320	
3/8"	3/8"	1"	.406	.081	190	
..	1/2"	1 1/4"	5/16"	.091	109	
..	5/8"	1 1/2"	1 1/16"	.102	70	
..	3/4"	2"	1 3/16"	.125	30	
..	7/8"	2 1/4"	1 5/8"	.125	25	
..	1"	2 1/2"	1 1/2"	.125	20	

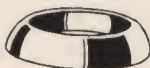
ALUMINUM FINISHING WASHERS

Countersunk Type—Bright Finish

In Boxes of 1000

For Oval and Flat Head

Wood or Machine Screws



Screw Size	OUTSIDE DIAMETER Inches	SIZE HOLE Inches
6	7/16"	.163
8	1/2"	.193
10	3/4"	.228
12	5/8"	.234

75S-T6 ALUMINUM LOCK WASHERS

ASA and SAE Standard

Medium Section



Screw and Bolt Sizes	SECTION SIZE Inches	APPROX. WEIGHT In Pounds per 1000	PACKING
4	.040 x .025	.06 lbs.	1000 per Box
6	.047 x .031	.11 lbs.	
8	.055 x .040	.19 lbs.	
10	.062 x .047	.25 lbs.	
12	.070 x .056	.40 lbs.	
1/4"	.109 x .062	.91 lbs.	
5/16"	.125 x .078	1.54 lbs.	
3/8"	.141 x .094	2.45 lbs.	500 per Box
7/16"	.156 x .109	3.57 lbs.	
1/2"	.171 x .125	5.04 lbs.	
5/8"	.203 x .156	9.06 lbs.	
3/4"	.234 x .188	15.00 lbs.	100 per Box
7/8"	.266 x .219	24.00 lbs.	
1"	.297 x .250	35.00 lbs.	

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMINUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

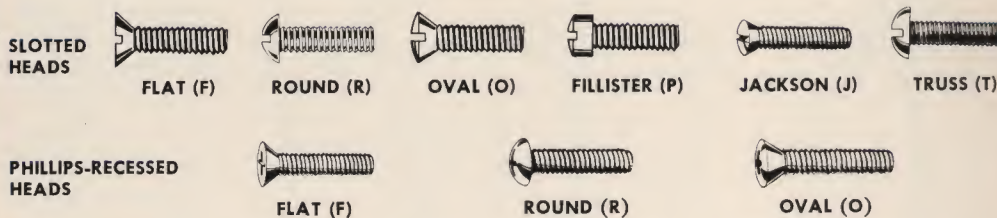
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24S-T4 ALUMINUM SLOTTED AND PHILLIPS HEAD MACHINE SCREWS

In One Gross Boxes
Bright Finish—Class 2 Fit



Diameter	4	6	8	10	10	12	1/4"	5/16"	3/8"
Threads Per Inch	40	32	32	24	*32	24	20	18	16
DECIMAL DIAMETER	.112"	.138"	.164"	.190"	.190"	.216"	.250"	.312"	.375"

SLOTTED HEADS

Lengths	FRP	FROPJT	FROPJT	FR JT	FRO JT	..	..	..	..
1/4"	FRP	FROPJT	FROPJT	FR JT	FRO JT	..	..	..	..
5/16"	FR	FRO JT	FRO J	FROJ	FR P T	..	..	..	..
3/8"	FRP	FROPJT	FROPJT	FROJT	FRO JT	FRO	FRO J	R	..
7/16"	..	O	F	R	F	F	F	..	..
1/2"	FRP	FROPJT	FROPJT	FROJT	FRO JT	FRO	FROPJT	FR	FR
5/8"	FR	FROPJT	FRO	FROJT	FRO JT	FR	FRO J	FR	FR
3/4"	FRP	FROPJT	FROPJT	FROJT	FRO JT	FRO	FROPJT	FROJ	FRO
7/8"	F	F P T	JT	FRO	FR	FROJ	..	..	..
1"	FRP	FROPJT	FROPJT	FROJT	FRO JT	FROJ	FROPJT	FROJ	FRO
1 1/4"	..	FRO JT	FRO JT	FROJ	FRO JT	FROJ	FROPJT	FROJ	FRO
1 1/2"	..	FRO J	FRO JT	FR	FRO J	F	FROPJT	FRO	FR
1 3/4"	..	F	FR J	FR	FR	FRO	FRO	FR	F
2"	..	FR J	FRO J	FR J	FRO JT	..	FROPJ	FRO	FR
2 1/2"	..	..	..	FR	FR	..	FR	FR	FR
3"	..	..	..	FR	FR	..	FR	FR	FR

PHILLIPS-RECESSED HEADS

Lengths	FRO	FRO	..	..	..	..	..	..	..
1/4"	FRO	FRO	..	..	..	..	..	..	..
5/16"	..	FRO	FRO	FR	FR	..	..	..	..
3/8"	..	FRO	FRO	FRO	FR	..	FR	..	..
7/16"	..	FR	RO	R	FR	..	..	..	..
1/2"	..	FRO	FRO	FRO	FR	..	FRO	FR	..
5/8"	..	FRO	FRO	FRO	FR	..	FRO	FR	..
3/4"	..	FRO	FRO	FRO	FR	..	FRO	FR	FR
7/8"	..	FR	FR	FR	FR	..	FR	R	F
1"	..	FRO	FRO	FRO	FR	..	FRO	FR	FR
1 1/8"	..	RO	RO	R	R	..	..	..	..
1 1/4"	..	FR	FRO	FRO	FR	..	FRO	FR	FR
1 1/2"	FR	FRO	FR	..	FRO	FR	FR
1 3/4"	FR	FR	..	FR	FR	..
2"	FR	FR	..	FR	FR	F

*Fine threads.

Machine Screws 2" and under are roll threaded to the head.

Screws over 2" long are cut threaded 1 3/4" long.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

24S-T4 ALUMINUM SLOTTED AND PHILLIPS HEAD WOOD SCREWS

In One Gross Boxes
Bright Finish—Class 2 Fit

SLOTTED HEADS



FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)

PHILLIPS-RECESSED HEADS



FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)

Diameter	4	5	6	7	8	9	10	12	14	16
DECIMAL SIZE	.112"	.125"	.138"	.151"	.164"	.177"	.190"	.216"	.242"	.268"

SLOTTED HEADS

Lengths	F	F O	FRO	FR	F O	F	FR	F	F O	F
3/8"	F	..	..	..	..	..	..	..	..	..
1/2"	FRO	F O	FRO	..	FRO	..	..	..	..	..
5/8"	FRO	F O	FRO	FR	F O	..	..	..	..	..
3/4"	FRO	FRO	FRO	FRO	FRO	..	FR	FR	..	..
7/8"	F	F	FRO	F	F	..	F	..	..	..
1"	F	FRO	FRO	FRO	FRO	F	FRO	FRO	F	..
1 1/4"	..	F	FRO	F O	FRO	F	FRO	FRO	F O	..
1 1/2"	..	..	FRO	F O	FRO	F	FRO	FRO	FRO	R
1 3/4"	..	..	..	F	F	F	FR	F	F	..
2"	..	..	..	..	F O	F	FRO	FR	FRO	F
2 1/2"	..	..	..	..	..	..	F	F	F	F
3"	..	..	..	..	..	..	F	F	F	F

PHILLIPS-RECESSED HEADS

Lengths	F O	..	..	..	..	..	..	..	..	..
3/8"	F O	..	..	..	..	..	..	..	..	..
1/2"	FRO	O	FRO	R	FR	..	..	..	..	..
5/8"	FRO	O	FRO	..	FRO	..	..	..	..	..
3/4"	FRO	FRO	FRO	FR	FRO	R	FR	..	..	..
7/8"	..	F	FRO	FRO	FRO	..	FR	..	..	..
1"	O	FRO	FRO	RO	FRO	F	FRO	FR	..	..
1 1/4"	..	..	FRO	F	FRO	F	FRO	FR	F	..
1 1/2"	..	..	..	..	FRO	FR	FRO	FR	F	..
1 3/4"	..	..	..	..	FR	..	FR	FR	F	..
2"	..	..	..	..	FRO	..	FRO	FR	FR	..
2 1/2"	..	..	..	..	..	..	..	FR	FR	..
3"	..	..	..	..	..	..	..	..	F	..

17S-T4 ALUMINUM THUMB SCREWS

Bright Finish
In Boxes of 100
Prompt Shipment



DIAMETER

IN LENGTHS OF

10-24	1/2"	3/4"	1"	1 1/4"
1/4"-20	3/4"	1"	1 1/4"	1 1/2"
5/16"-18	1"	1 1/4"	1 1/2"	2"



ALUMINUM COTTER PINS

High Strength Alloy

Diameters: 1/16" 3/32" 1/8" 5/32" 3/16" 1/4"

Lengths: 3/8" to 2 1/2" incl.

Made to order promptly.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC

INDEX

24S-T4 ALUMINUM SHEET METAL SCREWS

Self Tapping—Types "A" and "Z"

In One Cross Boxes

Slotted Head—Bright Finish—Waxed



FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)



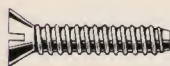
PAN (Binding) HEAD (P)



TRUSS HEAD (T)

TYPE "A" SIZES

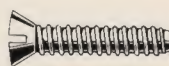
DIAMETER	4	6	7	8	10	12	14
DECIMAL SIZE	.112"	.138"	.155"	.165"	.191"	.218"	.251"
LENGTHS							
1/4"	FRT	FRT	..	..	..	..	..
3/8"	FRT P	FRT	FRT P	FRT P	..	..	..
1/2"	FRT P	FRT P	FRT P	FRT P	..	..	..
3/4"	FRT P	FRT P	FRT P	FRT P	..	..	..
3/4"	FRT	FRT P	FRT P	FRT P	FRT P	FRT P	FRT P
1"	..	FRT P	FRT P	FRT P	FRT P	FRT P	FRT P
1 1/4"	..	FRT	FRT P	FRT P	FRT P	FRT P	FRT P
1 1/2"	..	FRT	FRT	FRT	FRT P	FRT	FRT P
1 3/4"	..	..	..	..	FRT	..	FRT
2"	..	..	..	..	FRT	..	FRT



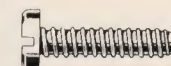
FLAT HEAD (F)



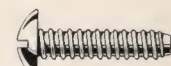
ROUND HEAD (R)



OVAL HEAD (O)



PAN (Binding) HEAD (P)



TRUSS HEAD (T)

TYPE "Z" SIZES

DIAMETER	4	6	7	8	10	12	14
DECIMAL SIZE	.112"	.137"	.151"	.163"	.186"	.212"	.243"
LENGTHS							
1/4"	FRT ○	FRT	FRT	FRT	FRT	..	..
3/8"	FRT P	FRT P	FRT P	FRT	FRT	..	..
3/8"	FRT P	FRT P ○	FRT P	FRT P ○	FRT P	FRT	FRT
1/2"	FRT P	FRT P	FRT P	FRT P ○	FRT P ○	FRT P	FRT
3/4"	FRT P	FRT P	FRT	FRT P	FRT P ○	FRT P	FRT P ○
3/4"	FRT	FRT P	FRT P	FRT P	FRT P	FRT P	FRT P
7/8"	..	FRT P	FRT P	FRT P	FRT P	FRT	FRT P
1"	..	FRT	FRT	FRT P	FRT P	..	FRT P
1 1/4"	..	..	..	FRT	FRT P	..	FRT P
1 1/2"	..	..	..	FRT	FRT	..	FRT
1 3/4"	..	..	..	..	FRT	..	FRT
2"	..	..	..	..	FRT	..	FRT

Sizes in Bold Type available from warehouse stocks. Sizes in Light Face Type are mill standards.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



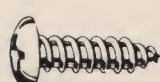
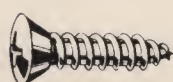
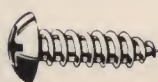
FASTENERS • SCREWS • NUTS • BOLTS • ETC.

24S-T4 ALUMINUM PHILLIPS-RECESSED HEAD SHEET METAL SCREWS

Self Tapping—Types "A" and "Z"

In One Gross Boxes
Bright Finish—Waxed

ALUMI-
NUM



FLAT HEAD (F) ROUND HEAD (R) OVAL HEAD (O) PAN (Binding) HEAD (P) TRUSS HEAD (T)

TYPE "A" SIZES

DIAMETER	4	6	7	8	10	12	14
DECIMAL SIZE	.112"	.138"	.155"	.165"	.191"	.218"	.251"
LENGTHS							
1/4"	FROPT	FROPT	..	..	..	..	..
3/8"	FROPT	FROPT	FROPT	FROPT	..	..	..
1/2"	FROPT	FROPT	FROPT	FROPT	..	..	..
5/8"	..	FROPT	FROPT	FROPT	..	..	..
3/4"	..	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT
1"	..	..	FROPT	FROPT	FROPT	FROPT	FROPT
1 1/4"	..	..	..	FROPT	FROPT	FROPT	FROPT
1 1/2"	..	..	..	..	..	..	FROPT

BRASS
BRONZE
COPPER



FLAT HEAD (F) ROUND HEAD (R) OVAL HEAD (O) PAN (Binding) HEAD (P) TRUSS HEAD (T)

TYPE "Z" SIZES

DIAMETER	4	6	7	8	10	12	14
DECIMAL SIZE	.112"	.137"	.151"	.163"	.186"	.212"	.243"
LENGTHS							
1/4"	FROPT	FROPT	FROPT	..	..	..	..
3/16"	FROPT	FROPT	FROPT	FROPT	FROPT	..	..
3/8"	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT	..
1/2"	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT
5/8"	..	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT
3/4"	..	FROPT	FROPT	FROPT	FROPT	FROPT	FROPT
7/8"	..	..	..	FROPT	FROPT	..	FROPT
1"	..	..	..	FROPT	FROPT	..	FROPT

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

Sizes in Bold Type available from warehouse stocks—other head types and sizes promptly.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE AND MILL ITEMS

MISC

INDEX



HEXAGON HEAD 24S-T4 ALUMINUM CAP SCREWS

American Standard
Bright Finish—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10
WIDTH OF HEAD (Across Flats)	7/16"	1/2"	9/16"	3/4"	7/8"	1"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	3/8"	15/32"	9/16"
PACKING	100 per Box				50 per Box	
LENGTHS						
1/2"	*	*	..	..	..	..
5/8"	*	*	..	..	..	..
3/4"	*	*	*	..	..	..
1"	*	*	*	*	*	..
1 1/4"	*	*	*	*	*	..
1 1/2"	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*
2"	*	*	*	*	*	*
2 1/2"	..	..	*	*	*	*
3"	..	..	*	*	*	*

*Denotes sizes available from warehouse stocks.

61S-T81 ALUMINUM WIRE NAILS

In 5-Pound Boxes and Bulk

Size	Length Inches	GAUGE	DECIMAL SIZE Inches	APPROX. NUMBER Per Pound
------	------------------	-------	---------------------------	--------------------------------



COMMON TYPE

..	3/4"	No. 16	.065	4200
2d	1"	No. 15	.072	2232
3d	1 1/4"	No. 14	.083	1437
4d	1 1/2"	No. 12	.109	700
5d	1 3/4"	No. 12	.109	650
6d	2"	No. 11	.120	425
8d	2 1/2"	No. 10	.134	260
10d	3"	No. 9	.148	182
16d	3 1/2"	No. 8	.165	130
20d	4"	No. 6	.203	80
30d	4 1/2"	No. 5	.220	55
40d	5"	No. 4	.238	50
60d	6"	No. 2	.284	30



SLATING (LARGE HEAD) TYPE

2d	1"	No. 12	.109	900
3d	1 1/4"	No. 11	.120	480
4d	1 1/2"	No. 10	.134	400
5d	1 3/4"	No. 10	.134	328
6d	2"	No. 9	.148	243
8d	2 1/2"	No. 9	.148	230
10d	3"	No. 9	.148	175

For Roofing Nails, consult Page 160.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

SQUARE HEAD ALUMINUM LAG SCREWS



(Also Termed Coach Screws)
American Standard—Gimlet Point

Diameter	1/4"	5/16"	3/8"	1/2"	
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	3/4"	PACKING
HEIGHT OF HEAD	1 1/4"	1 3/4"	1 1/4"	2 1/4"	
Lengths					
1"	*	*	..	..
1 1/2"	*	*	*	..	100
2"	*	*	*	*	per
2 1/2"	*	*	*	*	Box
3"	*	*	*	*	
3 1/2"	..	..	*	*
4"	..	..	*	*	50
4 1/2"	..	..	*	*	per
5"	..	..	*	*	Box
6"	..	..	*	*

*Denotes sizes available from warehouse stocks.

ALUMINUM HANGER SCREWS

With Hexagon Nut

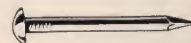
Diameters: 1/4" to 3/4" incl.

Lengths: To suit your requirements

Made to order promptly

24S-T4 ALUMINUM ESCUTCHEON PINS

In One-Pound Boxes



Lengths Inches	GAUGE	DECIMAL SIZE Inches	APPROX. NUMBER Per Pound
3/4"	No. 13 3/4	.083	2150
1"	No. 13 3/4	.083	1660
1 1/4"	No. 10 1/4	.130	520
1 1/4"	No. 14	.083	1300
1 1/2"	No. 10 1/4	.130	450
1 3/4"	No. 8 1/2	.153	285
2"	No. 8 1/2	.153	250

FLAT HEAD CUT ALUMINUM TACKS



In Boxes

Lengths Inches	SIZE OF BOX BY NUMBER	APPROX. NUMBER OUNCES Per Box	APPROX. NUMBER TACKS Per Box
3/8"	No. 15	One	500
7/16"	No. 15	One	400
1/2"	No. 15	One	345
3/8"	No. 60	Five	2300
7/16"	No. 60	Five	1800
1/2"	No. 60	Five	1375



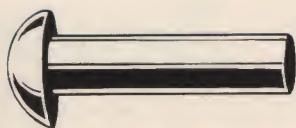
FASTENERS • SCREWS • NUTS • BOLTS • ETC.

2S-F ALUMINUM RIVETS

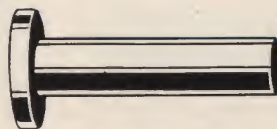
Plain Finish—Straight Shank

In One-Pound Boxes

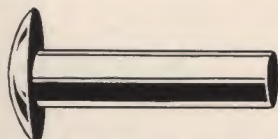
Army-Navy Aircraft Standard



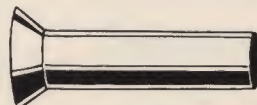
ROUND HEAD (R)—DRAWING AN430A



FLATHEAD (F)—DRAWING AN442A



BRAZIER HEAD (B)—DRAWING AN455A



78° COUNTERSUNK HEAD (C)—DRAWING AN425A

DASH NUMBERS AND STYLES CARRIED

DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
LENGTHS								
1/8"	2-2 R	3-2 R	..	..	..	..	..	..
3/16"	2-3 R	3-3 RFBC	4-3 RFB	5-3 R	..	..	..	..
1/4"	2-4 R C	3-4 RFBC	4-4 RFBC	5-4 RFBC	6-4 RFBC	..	..	..
5/16"	2-5 RF	3-5 RFBC	4-5 RFBC	5-5 RFBC	6-5 RFBC	..	..	..
3/8"	2-6 R	3-6 RFBC	4-6 RFBC	5-6 RFBC	6-6 RFBC	8-6 RFB	10-6 R	..
7/16"	..	..	4-7 R B	..	6-7 B	..	..	..
1/2"	2-8 R	3-8 RFBC	4-8 RFBC	5-8 RFBC	6-8 RFBC	8-8 RFBC	10-8 R	..
5/8"	..	3-10 B	4-10 RFBC	5-10 R	6-10 RFBC	8-10 R BC	10-10 R	..
3/4"	..	3-12 RFB	4-12 RFBC	5-12 R B	6-12 RFBC	8-12 RFBC	10-12 R	12-12 R
1"	..	3-16 RF	4-16 RFBC	5-16 R	6-16 RFBC	8-16 RFBC	10-16 R	12-16 R
1 1/4"	..	..	4-20 R	5-20 R	6-20 RF	8-20 RFBC	10-20 R	12-20 R
1 1/2"	..	..	..	..	6-24 R	8-24 RF C	10-24 R	12-24 R
2"	..	..	..	..	6-32 R	8-32 RF C	10-32 R	12-32 R

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

MISC

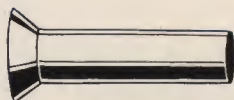
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A17S-T4 ALUMINUM RIVETS

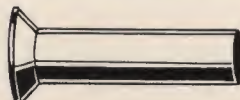
Alumilite 205 Finish (Anodized)—Straight Shank

In One-Pound Boxes

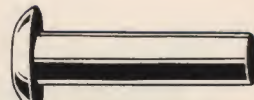
Army-Navy Aircraft Standard



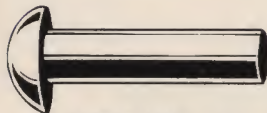
78° COUNTERSUNK HEAD (C)
DRAWING AN425AD



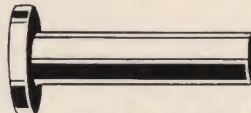
100° COUNTERSUNK HEAD (*)
DRAWING AN426AD



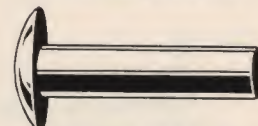
UNIVERSAL HEAD (U)
DRAWING AN470AD



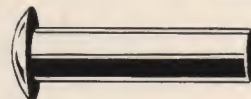
ROUND HEAD (R)
DRAWING AN430AD



FLAT HEAD (F)
DRAWING AN442AD



BRAZIER HEAD (B)
DRAWING AN455AD



MODIFIED BRAZIER HEAD (M)
DRAWING AN456AD

DASH NUMBERS AND STYLES CARRIED

DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"
LENGTHS						
3/16"	2-3 UR	3-3 C*URFBM	4-3 C*URFBM	..	..	..
1/4"	2-4 UR	3-4 C*URFBM	4-4 C*URFBM	5-4 C URFBM	6-4 *URFB	..
5/16"	2-5 UR	3-5 C*URFBM	4-5 C*URFBM	5-5 C URFBM	6-5 URFBM	..
3/8"	2-6 UR	3-6 C*URFBM	4-6 C*URFBM	5-6 C URFBM	6-6 C*URFBM	8-6 C URFB
7/16"	2-7 U	3-7 UR M	4-7 C*UR BM	5-7 C URFB	6-7 C URFBM	8-7 U
1/2"	2-8 U	3-8 C*URFBM	4-8 C*URFBM	5-8 C URFBM	6-8 C*URFBM	8-8 C*URFB
5/8"	..	..	4-9 U	5-9 UR	6-9 URFBM	8-9 U
3/4"	..	3-10 C* B	4-10 C*UR B	5-10 UR BM	6-10 C*URFBM	8-10 C*URF
7/8"	..	3-12 C* RF	4-12 C*URFB	5-12 URFBM	6-12 C*URFBM	8-12 C*URFB
1"	..	..	4-14 UR	5-14 UR B	6-14 URFB	8-14 UR
1 1/8"	..	3-16 C* R B	4-16 C*UR B	5-16 URFB	6-16 C*URFB	8-16 C*URFB
1 1/4"	..	..	..	..	6-18 R	8-18 U
1 1/2"	..	..	..	5-20 R	6-20 RF	8-20 R
1 3/4"	..	..	..	..	6-24 R	8-24 R

Identification Mark—dimple on top of head.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

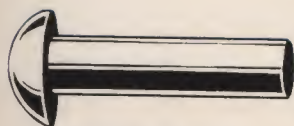


FASTENERS • SCREWS • NUTS • BOLTS • ETC.

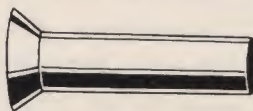
53S-T61 ALUMINUM RIVETS

Plain Finish—Straight Shank

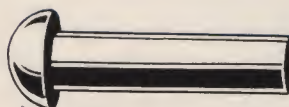
In One-Pound Boxes



ROUND HEAD (R)



78° COUNTERSUNK HEAD (C)



BUTTON HEAD (B)

DIAMETER	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
LENGTHS								
1/4"	R	R	..	..	..	..	..	..
5/16"	R	R	..	..	..	..	..	..
3/8"	RC	RC	RC	..	..	..	..	..
1/2"	RC	RC	RC	R	..	..	..	..
5/8"	RC	RC	RC	R	..	..	..	..
3/4"	RC	RC	RC	R	R	..	..	..
1"	..	RC	RC	R	R	B	..	..
1 1/4"	..	..	R	R	R	B	B	..
1 1/2"	..	..	R	R	R	B	B	B
1 3/4"	..	..	R	R	R	B	B	B
2"	..	..	R	R	R	B	B	B
2 1/2"	..	..	..	..	..	..	B	B
3"	..	..	..	..	..	..	B	B

Will meet Navy Specifications 43R5G. Identification Mark—Raised Figure (5) on end of Shank.

FLAT HEAD 2S-F ALUMINUM TINNERS' RIVETS

Plain Finish—Straight Shank

In One-Pound Boxes



*COMPARATIVE SIZE NUMBER (Steel)	PIECES PER POUND (Aluminum)	DIAMETER OF HEAD Inches	HEIGHT OF HEAD Inches	DIAMETER OF BODY Inches	LENGTH OF RIVET Inches
8 oz.	5303	.207	.027	.089	.160 (about 5/32")
12 oz.	3305	.236	.031	.105	.190 (about 3/16")
1 lb.	2799	.249	.033	.111	.200 (about 13/64")
1 1/4 lb.	2225	.260	.036	.120	.217 (about 7/32")
1 1/2 lb.	1750	.292	.039	.130	.230 (about 15/64")
2 lbs.	1248	.324	.043	.144	.270 (about 17/64")
2 1/2 lbs.	1147	.333	.044	.148	.280 (about 9/32")
3 lbs.	891	.360	.048	.160	.310 (about 5/16")
4 lbs.	676	.396	.052	.176	.340 (about 11/32")
5 lbs.	560	.420	.056	.186	.370 (about 3/8")
6 lbs.	442	.456	.060	.203	.390 (about 25/64")
8 lbs.	323	.504	.067	.224	.440 (about 7/16")
10 lbs.	269	.535	.071	.238	.470 (about 15/32")
12 lbs.	212	.582	.077	.259	.500 (about 1/2")
14 lbs.	165	.639	.085	.284	.520 (about 33/64")
16 lbs.	142	.675	.090	.300	.530 (about 17/32")

*Size number refers to "Trade Name" of weight of 1000 pieces of steel rivets.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

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FASTENERS • SCREWS • NUTS • BOLTS • ETC.



ALUMINUM AIRCRAFT FASTENERS

The customary procedure for ordering Aluminum Aircraft Fasteners according to Army-Navy Standards is to list the drawing number which explains type of fastener. Add to the drawing number the letter and dash number which designates alloy and size.

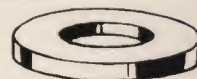
FLAT 2S-H18 AND 24S-T4 ALCLAD ALUMINUM AIRCRAFT WASHERS

Army-Navy (Aircraft) Standard—Drawing Nos. AN960A and AN960D

Regular and Light Series

Machine Finish

In Boxes of 1000



Screw or Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	DASH NUMBERS		NUMBER POUNDS PER 1000
				2S-H18	24S-T4 ALCLAD	
3	1/4"	7/64"	.032	A3	D3	.128
	..	..	.016	A3L	D3L	.064
4	5/16"	1/8"	.032	A4	D4	.208
	..	..	.016	A4L	D4L	.104
6	3/8"	9/64"	.032	A6	D6	.306
	..	..	.016	A6L	D6L	.153
8	3/8"	11/64"	.032	A8	D8	.281
	..	..	.016	A8L	D8L	.141
10	7/16"	13/64"	.064	A10	D10	.761
	..	..	.016	A10L	D10L	.191
1/4"	1/2"	17/64"	.064	A416	D416	.912
	..	..	.016	A416L	D416L	.228
5/16"	9/16"	21/64"	.064	A516	D516	1.050
	..	..	.016	A516L	D516L	.265
3/8"	5/8"	25/64"	.064	A616	D616	1.210
	..	..	.016	A616L	D616L	.302
7/16"	3/4"	29/64"	.064	A716	D716	1.810
	..	..	.016	A716L	D716L	.453
1/2"	7/8"	33/64"	.064	A816	D816	2.530
	..	..	.016	A816L	D816L	.633
5/8"	1 3/16"	41/64"	.064	A1016	D1016	5.07
	..	..	.016	A1016L	D1016L	1.27
3/4"	1 3/8"	49/64"	.091	A1216	D1216	8.38
	..	..	.016	A1216L	D1216L	1.44
7/8"	1 1/2"	57/64"	.091	A1416	D1416	10.80
	..	..	.016	A1416L	D1416L	1.84
1"	1 3/4"	1 1/4"	.091	A1616	D1616	15.00
	..	..	.016	A1616L	D1616L	2.57

Sizes up to and including 1/2" available from warehouse stocks. Other sizes are mill standards.

"L" denotes Light Sizes.

Material 2S-H18—Specification QQ-A-561—24S-T4 Alclad QQ-A-362. Anodized Finish also supplied promptly.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

HEXAGON HEAD 24S-T4 ALUMINUM AIRCRAFT BOLTS

Alumilite 205 Finish (Anodized)
Not Cross Drilled
Army-Navy Standard
Class 3 Med. Fit
In Boxes of 100



With or Without Hexagon Nuts

Diameter	10(3/16")	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	32	28	24	24	20
WIDTH OF HEAD (Across Flats)	3/8"	7/16"	1/2"	5/8"	3/4"
THICKNESS OF HEAD	1/8"	5/32"	3/16"	7/32"	9/32"

DRAWING NO. AN3DD AN4DD AN5DD AN6DD AN8DD

DASH NO. LGTH.

3A	3/8"	*	..	..	..	..
4A	1/2"	*	*	..	..	..
5A	5/8"	*	*	..	..	..
6A	3/4"	*	*	*	..	..
7A	7/8"	*	*	*	..	..
10A	1"	*	*	*	*	..
11A	1 1/8"	*	*	*	*	..
12A	1 1/4"	*	*	*	*	..
14A	1 1/2"	*	*	*	*	*
16A	1 3/4"	*	*	*	*	*
20A	2"	*	*	*	*	*
24A	2 1/2"	*	*	*	*	*
30A	3"	*	*	*	*	*
40A	4"	*	*	*	*	*

*Denotes sizes available from warehouse stocks.

Identification Mark—Raised Double Dash on top of Head.

HEXAGON 24S-T4 ALUMINUM AIRCRAFT BOLT NUTS

Alumilite 205 Finish (Anodized)
Class 3 Med. Fit
Army-Navy Standard
Drawing AN315D
In Boxes of 100



Bolt Size	Threads Per Inch	DRAWING DASH NUMBERS	WIDTH Inches (Across Flats)	THICKNESS Inches
10(3/16")	32	3R	3/8"	9/64"
1/4"	28	4R	7/16"	3/16"
5/16"	24	5R	1/2"	13/64"
3/8"	24	6R	9/16"	7/32"
7/16"	20	7R	5/8"	21/64"
1/2"	20	8R	3/4"	3/8"
9/16"	18	9R	7/8"	27/64"
5/8"	18	10R	1"	15/32"
3/4"	16	12R	1 1/8"	5/8"

Letter "R" denotes "Right Hand Thread."

HEXAGON 24S-T4 ALUMINUM AIRCRAFT SHEAR NUTS

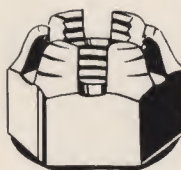
Alumilite 205 Finish (Anodized)
Class 3 Med. Fit
Army-Navy Standard
Drawing AN320D
In Boxes of 100



Bolt Size	Threads Per Inch	DRAWING DASH NUMBERS	WIDTH Inches (Across Flats)	THICKNESS Inches
10(3/16")	32	3	3/8"	3/16"
1/4"	28	4	7/16"	3/16"
5/16"	24	5	1/2"	3/16"
3/8"	24	6	9/16"	7/32"
1/2"	20	8	3/4"	1/4"

HEXAGON 24S-T4 ALUMINUM AIRCRAFT CASTELLATED NUTS

Alumilite 205 Finish (Anodized)
Class 3 Med. Fit
Army-Navy Standard
Drawing AN310D
In Boxes of 100



Bolt Size	Threads Per Inch	DRAWING DASH NUMBERS	WIDTH Inches (Across Flats)	THICKNESS Inches
10(3/16")	32	3	3/8"	1/4"
1/4"	28	4	7/16"	9/32"
5/16"	24	5	1/2"	21/64"
3/8"	24	6	9/16"	13/32"
7/16"	20	7	5/8"	29/64"
1/2"	20	8	3/4"	9/16"
9/16"	18	9	7/8"	39/64"
5/8"	18	10	1"	23/32"

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

ALUMI-
NUM

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

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ALUMINUM INDUSTRIAL ROOFING FASTENERS

For Use with Aluminum Roofing Sheets

★ ★ ★ ★

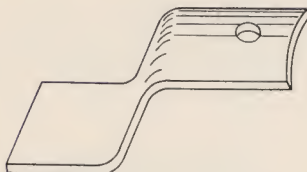
ALUMINUM PURLIN STRAPS

In 100-Foot Rolls
3/4" Wide x .051" Thick

★

ALUMINUM CLIPS

For Use with Corrugated Roofing Sheets



In Boxes of 500
1" x 2 1/2" x .091 Thick

★

FLAT HEAD 535-T61 ALUMINUM RIVETS

In One-Pound Boxes
.176" x 3/8"—660 Pieces Per Pound
.176" x 1/2"—555 Pieces Per Pound



★

PAN (BINDING) HEAD 24S-T4 ALUMINUM SHEET METAL SCREWS

Type "A"—Alumilite E2024 Finish

In One Gross Boxes
Size 3/4" No. 12

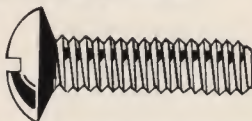


★

TRUSS HEAD 24S-T4 ALUMINUM MACHINE SCREWS

With Neoprene Washers Attached

Alumilite 204 Finish
In One Gross Boxes
12-24 x 5/8"
12-24 x 1"



Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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HEXAGON 24S-T4 ALUMINUM MACHINE SCREW NUTS

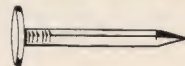
Alumilite 204 Finish
In One Gross Boxes
12-24



★

LARGE HEAD 61S-T81 ALUMINUM ROOFING NAILS

In 5-Pound Boxes and 50-Pound Cartons



Barbed Shank—No Washer
3/4", 1", 1 1/4", 1 1/2", 1 3/4", 2", 2 1/2", 3"
All .145" Diameter



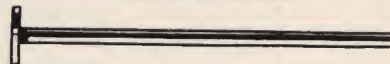
Barbed Shank—With Neoprene Washer Attached and
Screw-tite (Spiral Thread) Shank—With Neoprene Washer Attached



1 1/4" x .135", 1 1/2" x .135", 1 3/4" x .145", 2" x .145"
2 1/2" x .150" and 3" x .155"

★

FLAT HEAD ALUMINUM PURLIN NAILS



In Boxes of 1000
Head 7/16" Diameter
6", 7", 8", 9", 10", 11", 12"—All .150" Diameter

★

NEOPRENE WASHERS

For No. 12 Screws and Purlin Nails

In Boxes of 800

7/16" O.D. x .170" I.D. x 1/16" Thick

Other sizes made to order promptly



The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

FASTENERS • SCREWS • NUTS • BOLTS • ETC.

INDEX—BRASS • COPPER • BRONZE AND EVERDUR FASTENERS

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STUD BOLTS AND THREADED RODS

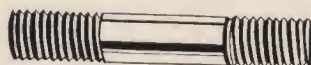
BRASS—BRONZE—COPPER—EVERDUR

Threaded promptly in any alloy specified from Rods in warehouse stock. (See Rod Section for sizes available.)

Studs



Type "A"—Tap End



Type "B"—Double End



Type "C"—Continuous Threads

When ordering Studs, clearly specify Type (A, B or C), Diameter, Threads per Inch and Length.

Threaded Rods

When ordering Threaded Rods, clearly specify Diameter and Length of Rods, Threads per Inch and Length of Threading.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
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HEXAGON HEAD NAVAL BRONZE MACHINE BOLTS

American Standard
(Also Termed Brass Bolts)
With or Without Hexagon Nuts
Class 2 Fit

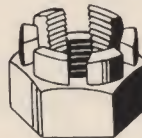


Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	5/32"	3/16"	15/64"	9/32"	19/64"	25/64"	15/32"
PACKING	100 per Box	50 per Box				25 per Box	
Lengths							
1/2"	*	*	..	..	..	..	..
3/4"	*	*	..	..	*	..	..
1"	*	*	*	*	*	..	..
1 1/4"	*	*	*	..	*	*	..
1 1/2"	*	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/4"	*	*	*	*	*	*	*
2 1/2"	*	*	*	*	*	*	*
2 3/4"	*	*	*	*	*	*	*
3"	*	*	*	*	*	*	*
3 1/4"	*	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*	*
3 3/4"	*	*	*	*	*	*	*
4"	*	*	*	*	*	*	*
4 1/2"	*	*	*	*	*	*	*
5"	*	*	*	*	*	*	*
5 1/2"	*	*	*	*	*	*	*
6"	*	*	*	*	*	*	*

*Denotes sizes available from warehouse stocks.

HEXAGON BRASS CASTELLATED NUTS

Semi-Finished—National Coarse
Threads—Class 2 Fit
(Light Pattern)



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches	PACKING
10(3/16")	24	3/8"	1/4"	100 per Box
1 1/4"	20	7/16"	9/32"	
5/16"	18	1/2"	21/64"	
3/8"	16	9/16"	13/32"	
7/16"	14	5/8"	25/64"	
1 1/2"	13	3/4"	9/16"	
5/8"	11	15/16"	23/32"	50 per Box
3 1/4"	10	1 1/16"	13/16"	

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

HEXAGON HEAD EVERDUR (SILICON BRONZE) MACHINE BOLTS

American Standard—With or
Without Hexagon Nuts
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	5/32"	3/16"	15/64"	9/32"	19/64"	25/64"	15/32"
PACKING	100 per Box	50 per Box				25 per Box	
Lengths	*	*	*	..	..	..	..
1 1/2"	*	*	*	..	*	..	..
5/8"	*	*	*	..	*	..	..
3/4"	*	*	*	..	*	..	..
7/8"	*	*	*	..	*	..	..
1"	*	*	*	*	*	*	..
1 1/4"	*	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/4"	*	*	*	..	*	*	*
2 1/2"	*	*	*	*	*	*	*
2 3/4"	*	*	*	..	*	*	*
3"	*	*	*	*	*	*	*
3 1/4"	..	..	*	..	*	*	*
3 1/2"	*	*	*	*	*	*	*
4"	*	*	*	..	*	*	*
4 1/2"	..	*	*	..	*	*	*
5"	..	..	*	..	*	*	*
5 1/2"	..	..	..	..	*	*	*
6"	..	..	*	..	*	*	*

Short lengths are threaded to head and longer lengths have a full size shank equal to the diameter of the bolt.

KNURLED BRASS NUTS

Especially Suitable for Use by
Instrument Equipment and
Electrical Apparatus Manufacturers



Screw or Bolt Size	Threads Per Inch	DIAMETER OF HEAD Inches	THICKNESS OF NUT Inches	PACKING
4	*36	3/8"	1/4"	100 per Box
6	32	13/32"	9/32"	
8	32	7/16"	5/16"	
10	24	1/2"	21/64"	
10	*32	1/2"	21/64"	
12	24	5/8"	11/32"	
1 1/4"	20	5/8"	3/8"	50 per Box
5/16"	18	11/16"	13/32"	

*Fine threads.

ROUND HEAD NAVAL BRONZE CARRIAGE BOLTS

American Standard
(Also Termed Brass Bolts)
With or Without Hexagon Nuts
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"
Threads Per Inch	20	18	16	14	13	11
DIAMETER OF HEAD	9/16"	1 1/16"	1 3/16"	1 5/16"	1 1/8"	1 5/16"
HEIGHT OF HEAD	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"
PACKING	100 per Box	50 per Box			25 per Box	
Lengths						
1 1/4"	*	*	*	..	..	..
1 1/2"	*	*	*	*	*	..
1 3/4"	*	*	*	..	..	..
2"	*	*	*	*	*	..
2 1/4"	*	*	*	..	*	..
2 1/2"	*	*	*	*	*	*
2 3/4"	*	*	*	..	..	..
3"	*	*	*	*	*	*
3 1/4"	*	*	*	..	..	..
3 1/2"	*	*	*	*	*	*
3 3/4"	*	*	*	..	..	..
4"	*	*	*	*	*	*
4 1/2"	*	*	*	*	*	*
5"	*	*	*	*	*	*
5 1/2"	*	*	*	*	*	*
6"	*	*	*	*	*	*

*Denotes sizes available from warehouse stocks.

BRASS WING NUTS

Cold Forged—Class 2 Fit



Screw or Bolt Size	Threads Per Inch	WING SPREAD Inches	HEIGHT OVERALL Inches	APPROX. WEIGHT Per 100	PACK-ING
6	32	27/32"	7/16"	7/8 lb.	100 per Box
8	32	27/32"	7/16"	7/8 lb.	
10	24	27/32"	7/16"	7/8 lb.	
10	*32	27/32"	7/16"	7/8 lb.	
12	24	1 1/16"	1/2"	1 1/2 lb.	50 per Box
1 1/4"	20	1 1/16"	1/2"	1 1/2 lb.	
5/16"	18	1 7/32"	.615"	2 3/4 lbs.	
3/8"	16	1 13/32"	.725"	4 lbs.	
7/16"	14	1 7/8"	29/32"	10 1/6 lbs.	25 per Box
1/2"	13	1 7/8"	29/32"	9 3/5 lbs.	
5/8"	11	2 11/16"	1 3/8"	26 lbs.	
3/4"	10	2 11/16"	1 3/8"	24 lbs.	

*Fine threads.

ROUND HEAD EVERDUR (SILICON BRONZE) CARRIAGE BOLTS

American Standard
Square Neck—Class 2 Fit
With or Without Hexagon Nuts



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"
Threads Per Inch	20	18	16	14	13	11
DIAMETER OF HEAD	5/16"	1 1/16"	1 3/16"	1 5/16"	1 1/16"	1 5/16"
HEIGHT OF HEAD	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"
PACKING	100 per Box	50 per Box			25 per Box	
Lengths						
3/4"	*	..	..	..	..	..
1"	*	*	*	..	..	..
1 1/4"	*	*	*	..	..	.
1 1/2"	*	*	*	..	*	..
1 3/4"	*	*	*	..	..	..
2"	*	*	*	*	*	..
2 1/4"	*	*	*	..	..	..
2 1/2"	*	*	*	..	*	*
3"	*	*	*	*	*	*
3 1/2"	*	*	*	..	*	*
4"	*	*	*	*	*	*
4 1/2"	*	*	*	..	*	*
5"	*	*	*	*	*	*
5 1/2"	*	*	*	..	..	..
6"	*	*	*	*	*	*

HEXAGON BRASS CAP NUTS

(Also Termed Acorn Nuts)
Plain Finish—Class 2 Fit



Screw or Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	HEIGHT OVERALL Inches	DEPTH OF THREADS Inches	PACK-ING
6	32	5/16"	3/32"	3/16"	100 per Box
8	32	5/16"	3/32"	3/16"	
10	24	3/8"	1 1/32"	7/32"	
10	*32	3/8"	1 1/32"	7/32"	
12	24	3/8"	1 1/32"	7/32"	50 per Box
1 1/4"	20	7/16"	3/8"	1/4"	
1 1/4"	20	1/2"	13/32"	9/32"	
5/16"	18	9/16"	7/16"	9/32"	
3/8"	16	5/8"	1/2"	5/16"	25 per Box
7/16"	14	3/4"	9/16"	3/8"	
1/2"	13	3/4"	9/16"	3/8"	
5/8"	11	1 1/8"	3/4"	7/16"	
3/4"	10	1 1/8"	7/8"	1/2"	

*Fine threads.

†Small pattern.

‡Large pattern.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

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HEXAGON BRASS BOLT NUTS

Semi-Finished—National
Coarse and Fine Threads
Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches		PACK- ING
			Full	Jam	
AMERICAN STANDARD REGULAR					
1/4"	20	7/16"	13/64"	9/64"	100 per Box
5/16"	18	9/16"	1/4"	1 1/64"	
3/8"	16	5/8"	3/16"	13/64"	
7/16"	14	3/4"	23/64"	15/64"	
1/2"	13	13/16"	27/64"	19/64"	
5/8"	11	1"	1 1/32"	23/64"	50
3/4"	10	1 1/8"	41/64"	27/64"	per Box
7/8"	9	1 1/16"	3/4"	31/64"	25
1"	8	1 1/2"	55/64"	35/64"	per Box
1 1/8"	7	1 11/16"	31/32"	3/64"	Bulk
1 1/4"	7	1 7/8"	1 1/16"	23/32"	

AMERICAN STANDARD HEAVY					
1/4"	20	1/2"	15/64"	11/64"	100 per Box
5/16"	18	9/32"	19/64"	13/64"	
3/8"	16	11/16"	23/64"	15/64"	
7/16"	14	25/32"	27/64"	17/64"	
1/2"	13	7/8"	31/64"	19/64"	
5/8"	11	1 1/16"	39/64"	23/64"	50
3/4"	10	1 1/4"	47/64"	27/64"	per Box
7/8"	9	1 7/16"	55/64"	31/64"	25
1"	8	1 5/8"	63/64"	35/64"	per Box
1 1/8"	7	1 13/16"	1 1/4"	39/64"	Bulk
1 1/4"	7	2"	1 7/8"	23/32"	
1 1/2"	6	2 3/8"	1 5/32"	27/32"	

AMERICAN STANDARD LIGHT SAE					
1/4"	28	7/16"	7/32"	5/32"	100 per Box
5/16"	24	1/2"	1 1/64"	3/16"	
3/8"	24	9/16"	21/64"	7/32"	
7/16"	20	5/8"	3/8"	1/4"	
1/2"	20	3/4"	7/16"	5/16"	
5/8"	18	15/16"	35/64"	3/8"	50
3/4"	16	1 1/16"	21/32"	3/8"	per Box
7/8"	14	1 1/4"	49/64"	7/16"	25
1"	14	1 7/16"	7/8"	1/2"	per Box

HEXAGON EVERDUR (SILICON BRONZE) MACHINE SCREW NUTS

In One Gross Boxes

Class 2 Fit



Screw Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches
6	32	5/16"	7/64"
8	32	11/32"	1/8"
10	24	3/8"	1/8"
10	*32	3/8"	1/8"
12	24	7/16"	5/32"
1 1/4"	20	7/16"	3/16"

*Fine threads.

HEXAGON EVERDUR (SILICON BRONZE) BOLT NUTS

Semi-Finished—National Coarse
and Fine Threads—Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches		PACK- ING
			Full	Jam	
AMERICAN STANDARD REGULAR					
1/4"	20	7/16"	13/64"	9/64"	100 per Box
5/16"	18	9/16"	1/4"	11/64"	
3/8"	16	5/8"	3/16"	13/64"	
7/16"	14	3/4"	23/64"	15/64"	
1/2"	13	13/16"	27/64"	19/64"	
5/8"	11	1"	17/32"	23/64"	50
3/4"	10	1 1/8"	41/64"	27/64"	per Box
7/8"	9	1 1/16"	3/4"	31/64"	25
1"	8	1 1/2"	55/64"	35/64"	per Box

AMERICAN STANDARD HEAVY					
1/4"	20	1/2"	15/64"	11/64"	100 per Box
5/16"	18	9/32"	19/64"	13/64"	
3/8"	16	11/16"	23/64"	15/64"	
7/16"	14	25/32"	27/64"	17/64"	
1/2"	13	7/8"	31/64"	19/64"	
5/8"	11	1 1/16"	39/64"	23/64"	50
3/4"	12	1 1/4"	47/64"	27/64"	per Box
7/8"	9	1 7/16"	55/64"	31/64"	25
1"	8	1 5/8"	63/64"	35/64"	per Box

AMERICAN STANDARD LIGHT SAE					
1/4"	28	7/16"	7/32"	5/32"	100 per Box
5/16"	24	1/2"	1 1/64"	3/16"	
3/8"	24	9/16"	21/64"	7/32"	
7/16"	20	5/8"	3/8"	1/4"	
1/2"	20	3/4"	7/16"	5/16"	
5/8"	18	15/16"	35/64"	3/8"	50
3/4"	16	1 1/16"	21/32"	3/8"	per Box
7/8"	14	1 1/4"	49/64"	7/16"	25
1"	14	1 7/16"	7/8"	1/2"	per Box

HEXAGON BRASS MACHINE SCREW NUTS

American Standard
Cold Punched—Single Chamfer
Class 2 Fit
In One Gross Boxes



Screw Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches
2	56	3/16"	1/16"
3	48	3/16"	1/16"
4	40	1/4"	3/32"
6	32	5/16"	7/64"
8	32	11/32"	1/8"
10	24	3/8"	1/8"
10	*32	3/8"	1/8"
12	24	7/16"	5/32"
1 1/4"	20	7/16"	3/16"
5/16"	18	9/16"	7/32"
3/8"	16	5/8"	1/4"

*Fine threads.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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HEXAGON NAVAL BRONZE BOLT NUTS

Semi-Finished—National Coarse
Threads—Class 2 Fit



AMERICAN STANDARD REGULAR

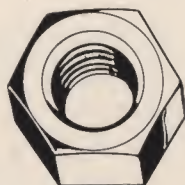
Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	NOMINAL THICKNESS Inches Full Nut Jam Nut	PACK-ING
1/4"	20	7/16"	13/64"	..
5/16"	18	3/8"	1/4"	..
3/8"	16	5/8"	5/16"	13/64"
7/16"	14	3/4"	23/64"	..
1/2"	13	13/16"	27/64"	19/64"
5/8"	11	1"	17/32"	23/64"
3/4"	10	1 1/8"	41/64"	27/64"
7/8"	9	1 1/16"	3/4"	..
1"	8	1 1/2"	53/64"	..
1 1/8"	7	1 11/16"	31/32"	..
1 1/4"	7	1 7/8"	1 1/16"	..
1 1/2"	6	2 1/4"	1 3/32"	..

AMERICAN STANDARD HEAVY

1/4"	20	1/2"	15/64"	..
5/16"	18	13/32"	19/64"	..
3/8"	16	11/16"	23/64"	..
7/16"	14	23/32"	27/64"	..
1/2"	13	7/8"	31/64"	..
5/8"	11	1 1/16"	39/64"	..
3/4"	10	1 1/4"	47/64"	..
7/8"	9	1 7/16"	55/64"	..
1"	8	1 5/8"	63/64"	..

ROUGH CAST BRASS NUTS

American Standard Heavy
Unfinished
National Coarse Threads
Prompt Shipment
in Bulk



Bolt Size	THREADS PER INCH	WIDTH Inches (Across Flats)	THICKNESS Inches
1/2"	13	7/8"	1/2"
5/8"	12	1 1/16"	9/16"
3/4"	11	1 1/8"	5/8"
7/8"	10	1 1/4"	3/4"
1"	9	1 7/16"	7/8"
1 1/8"	8	1 5/8"	1"
1 1/4"	7	1 13/16"	1 1/8"
1 1/2"	7	2"	1 1/4"
1 3/8"	6	2 3/16"	1 3/8"
1 1/2"	6	2 3/8"	1 1/2"
1 5/8"	5 1/2	2 1/16"	1 5/8"
1 3/4"	5	2 3/4"	1 3/4"
1 7/8"	5	2 11/16"	1 7/8"
2"	4 1/2	3 1/8"	2"

FLAT BRASS WASHERS

Plain Finish
For Screws—Bolts—Rods
In One-Pound Boxes and Bulk



Screw Size	Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	APPROX. NUMBER Per Pound
SMALL PATTERN SIZES					
2	3/16"	.090	.020	.020	7637
3	1/4"	.105	.020	.020	4016
4	5/32"	.119	.025	.025	2572
6	3/16"	.147	.028	.028	1949
8	3/8"	.172	.032	.032	1165
10	7/16"	.200	.036	.036	760
12	1/2"	.227	.040	.040	522
14	9/16"	.260	.040	.040	417
16	5/8"	.282	.040	.040	333
18	1 1/16"	.310	.051	.051	216
20	3/4"	.337	.064	.064	144
24	7/8"	.391	.064	.064	106

LARGE PATTERN SIZES

6	1/8"	3/8"	.147	.032	1086
8	5/32"	7/16"	.172	.036	711
10	3/16"	1/2"	.200	.040	494
12		9/16"	.227	.040	391
14	1/4"	1 1/16"	.260	.051	200
16		3/4"	.282	.064	134
18		7/8"	.310	.064	97
20	5/16"	7/8"	.337	.064	96
24	3/8"	1"	.391	.081	60

BOLT SIZES

1/4"	1 1/16"	.260	.051	200
5/16"	7/8"	.337	.064	96
3/8"	1"	.391	.081	60
7/8"	1 1/8"	.081	.081	50
1 1/16"	1 1/4"	.091	.091	36.5
5/8"	1 1/2"	.102	.102	22.8
3/4"	1 3/8"	.114	.114	12.7
7/8"	2 1/4"	.128	.128	7.7
1"	2 1/2"	.144	.144	5.6
*1 1/8"	2 3/4"	.156	.156	4.3
*1 1/4"	3"	.156	.156	3.6

*Carried in bulk only.

FLAT COPPER WASHERS

In One-Pound Boxes
For Bolts and Rods



Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	APPROX. NUMBER Per Pound
(10) 3/16"	1/2"	.200	.040	470
1/4"	1 1/16"	.260	.051	194
5/16"	7/8"	.337	.064	103
3/8"	1"	.391	.064	73
7/16"	1 1/8"	.081	.081	49
1/2"	1 1/4"	.081	.081	40
5/8"	1 1/2"	.102	.102	22
3/4"	1 3/8"	.102	.102	13.5

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
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EVERDUR (SILICON BRONZE) LOCK WASHERS

Kantlink Type
Medium Section



Screw and Bolt Size	SECTION Inches	APPROX. WEIGHT Per 1000	PACKING
2	.035 x .020	.11 lb.	1000 per Box
3	.040 x .025	.17 lb.	
4	.040 x .025	.17 lb.	
6	.047 x .031	.31 lb.	
8	.055 x .040	.54 lb.	
10	.062 x .047	.79 lb.	
12	.070 x .056	1.19 lb.	
1 1/4"	.109 x .062	2.59 lbs.	
5/16"	.125 x .078	4.44 lbs.	
3/8"	.141 x .094	7.00 lbs.	
7/16"	.156 x .109	10.21 lbs.	500 per Box
1 1/2"	.171 x .125	14.36 lbs.	
5/8"	.203 x .156	25.87 lbs.	
3/4"	.234 x .188	42.93 lbs.	100 per Box
7/8"	.266 x .219	67.39 lbs.	
1"	.297 x .250	96.62 lbs.	

FLAT EVERDUR (SILICON BRONZE) WASHERS

Packing: Screw sizes 1000 per box—Bolt sizes 100 per box



Screw Size	Bolt Size	OUTSIDE DIAM. Inches	INSIDE DIAM. Inches	THICK-NESS Inches	APPROX. NUMBER Per Pound
6	..	3/8"	.147	.032	1050
8	..	3/8"	.172	.032	1130
10	..	7/16"	.200	.036	735
12	..	1/2"	.227	.040	506
..	1/4"	1 1/16"	.260	.040	200
..	5/16"	7/8"	.337	.064	93
..	3/8"	1"	.391	.064	87
..	7/16"	1 1/8"	.464	.064	70
..	1/2"	1 1/4"	.537	.091	40
..	5/8"	1 1/2"	.610	.091	24
..	3/4"	1 3/4"	.683	.102	14
..	7/8"	2 1/4"	.756	.114	8
..	1"	2 1/2"	.829	.128	7

BRASS FINISHING WASHERS

Countersunk Type
In Boxes of 1000



Screw Size	Bolt Size	OUTSIDE DIAMETER Inches	HOLE SIZE Inches	APPROX. HEIGHT Inches
4	..	2 3/64"	.120	.081
5	..	2 5/64"	.143	.095
6	..	7/16"	.167	.096
8	..	1/2"	.193	.100
10	..	3 7/64"	.228	.113
12	..	5/8"	.234	.133
..	1/4"	2 3/32"	.288	.137
16	..	3/4"	.319	.148
..	5/16"	5 5/64"	.355	.163
..	3/8"	1"	.484	.176

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

HEXAGON HEAD BRASS CAP SCREWS

American Standard
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
HEIGHT OF HEAD	3/16"	1 5/16"	9/32"	2 1/16"	3/8"	1 1/32"	9/16"
LENGTH OF THREAD	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 3/4"

PACKING	100 per Box	50 per Box	25 per Box
LENGTHS			
3/8"	*
1/2"	*	*	*
5/8"	*	*	*
3/4"	*	*	*
7/8"	*	*	*
1"	*	*	*
1 1/4"	*	*	*
1 1/2"	*	*	*
1 3/4"	*	*	*
2"	*	*	*
2 1/4"	*	*	*
2 1/2"	*	*	*
2 3/4"	*	*	*
3"	*	*	*
3 1/2"	*
4"	*

JACKSON HEAD MUNTZ METAL MACHINE SCREWS

In One Gross Boxes

Especially Adapted for Architectural Purposes



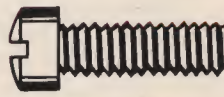
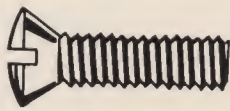
Diameter	6	8	10	1 1/4"
Threads Per Inch	32	32	32	20
DECIMAL SIZE	.138"	.164"	.190"	.250"
LENGTHS				
1/4"	*	*	*	..
3/8"	*	*	*	..
1/2"	*	*	*	*
5/8"	*	*	*	*
3/4"	*	*	*	*
7/8"	*	*	*	*
1"	*	*	*	*
1 1/4"	..	*	*	*
1 1/2"	..	..	*	*
2"	..	..	*	..

FASTENERS • SCREWS • NUTS • BOLTS • ETC.

BRASS AND EVERDUR (SILICON BRONZE) MACHINE SCREWS

American Standard Rolled Threads—Plain Finish—Class 2 Fit

In One Gross Boxes (Except $\frac{3}{16}$ " and $\frac{1}{2}$ " Dia., $\frac{1}{2}$ Gross Boxes)



FLAT (F)

ROUND (R)

OVAl (O)

FILLISTER (P) HEADS

Diameter	2	3	4	6	8	10	10	12	$\frac{1}{4}$ "	$\frac{5}{16}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "
Threads	56	48	40	32	32	24	*32	24	20	18	16	13
DECIMAL	.086"	.099"	.112"	.138"	.164"	.190"	.190"	.216"	.250"	.312"	.375"	.500"

Lengths												
	RP	RP	R	R	R	R	R	R	R	R	R	R
$\frac{1}{8}$ "	FRP	FRP	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P
$\frac{3}{16}$ "	FRP	FRP	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P
$\frac{1}{4}$ "	FRP	FRP	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P	FR P
$\frac{5}{16}$ "	FRP	FR	FRO	FRO	FRO	FRO	FRO	FRO	FR	FR	FR	FR
$\frac{3}{8}$ "	FRP	FR	FRO	FRO	FRO	FRO	FRO	FRO	FR	FR	FR	FR
$\frac{7}{16}$ "	R	R	FR	FRO	FRO	R	FR	FR	R	FR	FR	FR
$\frac{1}{2}$ "	FRP	FR	FRO	FRO	FRO	FRO	FRO	FRO	FR	FRO	FR	FR
$\frac{5}{8}$ "	FR	FR	FR	FRO	FRO	FRO	FRO	FRO	FR	FRO	FR	FR
$\frac{3}{4}$ "	R	R	FR	FRO	FRO	FRO	FRO	FRO	FR	FRO	FRP	FR
$\frac{7}{8}$"	..	..	R	FR	FR	FR	FR	FR	R	FR	R	FR
1"	..	..	FR	FRO	FRO	FRO	FRO	FRO	FR	FRO	FRP	FR
$1\frac{1}{8}$"	..	..	..	R	R	R	R	..	..	..	..	..
$1\frac{1}{4}$"	..	..	R	FRO	FRO	FRO	FRO	FR	FRO	FRP	FR	FR
$1\frac{1}{2}$"	..	..	..	FR	FRO	FRO	FRO	FR	FRO	FRP	FR	FR
$1\frac{3}{4}$"	..	..	..	R	FR	FR	FR	..	FR	R	F	FR
2"	..	..	..	FR	FR	FR	FR	FR	FR	FR	FR	FR
$2\frac{1}{4}$"	..	..	..	..	R	R	R	..	R	..	..	..
$2\frac{1}{2}$"	..	..	..	..	R	FR	R	..	FR	FR	FR	..
3"	..	..	..	..	R	R	R	..	FR	FR	FR	..

Lengths												
	RP	RP	R	R	R	R	R	R	R	R	R	R
$\frac{1}{4}$ "	FRP	FRP	R	R	..	..	..	..	..
$\frac{5}{16}$ "	R	R	R	R	..	..	..	..	..
$\frac{3}{8}$ "	FRP	FRP	FRP	FRP	R	FRP	..	..	..
$\frac{7}{16}$ "	R	R	R	..	..	..	..
$\frac{1}{2}$ "	FRP	FRP	FRP	FRP	R	FRP	FR	FR	..
$\frac{5}{8}$ "	FRP	FRP	FRP	FRP	R	FRP	FRP	FR	..
$\frac{3}{4}$ "	FRP	FRP	FRP	FRP	R	FRP	FRP	FRP	F
$\frac{7}{8}$ "	FRP	FRP	FRP	FRP	R	FRP	FR	FR	..
1"	FRP	FRP	FRP	FRP	R	FRP	FRP	FRP	F
$1\frac{1}{8}$ "	R	..	R	..	R	..	..	..
$1\frac{1}{4}$ "	FR	FR	FR	FRP	R	FRP	FR	FRP	F
$1\frac{1}{2}$ "	R	FR	FR	FRP	R	FRP	FR	FRP	F
$1\frac{3}{4}$ "	R	FR	FR	..	FR	FR	FR	F
2"	R	R	FR	FR	R	FRP	FR	FR	F
$2\frac{1}{4}$ "	R	..	..	..	..	..	..	..
$2\frac{1}{2}$ "	R	..	R	..	FR	FR	FR	..
3"	FR	FR	FR	..

*Fine threads.

Screws 2" and shorter are threaded to the head—over 2" are threaded 2 inches.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

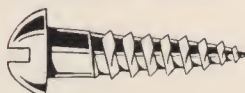
DATA

MISC

INDEX

BRASS WOOD SCREWS

In One Gross Boxes
American Standard

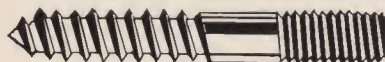


FLAT HEAD (F)			ROUND HEAD (R)			OVAL HEAD (O)		
Diameter	0	1	2	3	4	5	6	7
Decimal	.060"	.073"	.086"	.099"	.112"	.125"	.138"	.151"
Lengths								
1/4"	FR	FR	FR	FR	FR	..	..	..
3/8"	FR	FR	FR	FR	FRO	..	R	..
1/2"	..	F	FRO	FRO	FRO	FRO	FRO	RO
5/8"	..	..	F	RO	FRO	FRO	FRO	FR
3/4"	..	..	F	FR	FR	FRO	FRO	FRO
7/8"	..	..	..	..	FRO	F	FRO	FR
1"	..	..	..	..	FR	FR	FRO	FRO
1 1/4"	..	..	..	..	..	..	FRO	FRO
1 1/2"	..	..	..	..	..	..	FR	FR
1 3/4"	..	..	..	..	..	..	..	F
2"	..	..	..	..	..	..	..	R
Diameter	8	9	10	12	14	16	18	
Decimal	.164"	.177"	.190"	.216"	.242"	.268"	.294"	
Lengths								
1/2"	FRO	..	..	..	..	..	..	..
5/8"	F O	..	..	..	..	..	..	..
3/4"	FRO	F	FRO	FRO	..	..	..	..
7/8"	FRO	FR	FR	FRO	..	..	..	..
1"	FRO	FR	FRO	FRO	FRO	..	..	..
1 1/4"	FRO	FR	FRO	FR	FRO	F	..	..
1 1/2"	FRO	FR	FRO	FRO	FRO	F	..	..
1 3/4"	FR	FR	FRO	FR	FRO	..	..	..
2"	FRO	FR	FRO	FRO	F O	FR	FR	FR
2 1/4"	..	..	FR	F	FR	..	..	..
2 1/2"	..	..	FR	FR	F O	F	FR	FR
3"	..	..	F	FR	FRO	FR	FR	FR
3 1/2"	..	..	..	..	R	R	..	..

Countersunk Finishing Washers for Oval and Flat Screws are listed on Page 166.

NAVAL BRONZE HANGER SCREWS

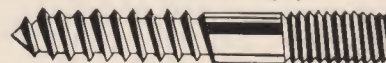
With or Without Hexagon Nuts or Washers
Made to Order Promptly



Diameters: 1/4" to 3/4" incl.
Lengths: To suit your requirements
For Hexagon Nuts, consult Page 164.
For Washers, consult Page 166.

EVERDUR (SILICON BRONZE) HANGER SCREWS

With or Without Hexagon Nuts
Made to Order Promptly



Diameters: 1/4" 5/16" 3/8" 7/16" 1/2" 5/8" 3/4"
Lengths: To suit your requirements

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

EVERDUR (SILICON BRONZE) WOOD SCREWS

American Standard



FLAT HEAD (F)



ROUND HEAD (R)

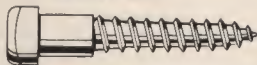
DIAMETER	4	5	6	7	8	9	10	12	14	16	18	20	22	24
DECIMAL	.112"	.125"	.138"	.151"	.164"	.177"	.190"	.216"	.242"	.268"	.294"	.320"	.346"	.372"
PACKING	One Gross Per Box											1/2 Gross Per Box		
LENGTHS														
1/2"	F	F	F	..	..	..	..	..	..	..	..	..	..	..
5/8"	F	F	F	..	F	..	..	..	..	..	..	..	..	..
3/4"	F	F	FR	FR	FR	..	FR	F	..	..	..	..	..	..
7/8"	..	..	FR	F	F	F	F	F	..	..	..	..	..	..
1"	..	F	FR	FR	FR	F	FR	F	F	F	..	..	..	..
1 1/4"	..	..	FR	F	F	F	F	F	F	F	F	..	..	..
1 1/2"	..	..	FR	F	F	F	FR	FR	F	F	F	..	..	..
1 3/4"	..	..	..	..	F	F	F	F	F	..	..	..	..	..
2"	..	..	..	..	F	F	FR	FR	F	F	F	F	F	F
2 1/4"	..	..	..	..	..	..	F	F	F	F	F	..	..	..
2 1/2"	..	..	..	..	..	..	F	F	F	F	F	F	F	F
3"	..	..	..	..	..	..	F	F	F	F	F	F	F	F
3 1/2"	..	..	..	..	..	..	..	..	F	F	F	F	F	F
4"	..	..	..	..	..	..	..	..	F	F	F	F	F	F
4 1/2"	..	..	..	..	..	..	..	..	..	..	..	..	..	F
5"	..	..	..	..	..	..	..	..	..	..	..	..	..	F

SQUARE HEAD NAVAL BRONZE LAG SCREWS

American Standard

(Also Termed Lag Bolts and Coach Screws)

Gimlet Point



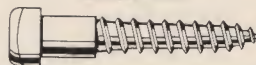
DIAMETER	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	1 1/16"	1 1/8"
HEIGHT OF HEAD	1 1/64"	1 3/64"	1 1/4"	1 5/64"	2 1/64"	2 7/64"	1 1/2"
PACKING	100 per Box	50 per Box				25 per Box	
LENGTHS							
1 1/2"	*	*	*	..	..	..	..
2"	*	*	*	*	*	..	..
2 1/2"	*	*	*	*	*	*	*
3"	*	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*	*
4"	*	*	*	*	*	*	*
4 1/2"	*	*	*	*	*	*	*
5"	*	*	*	*	*	*	*
5 1/2"	*	*	*	*	*	*	*
6"	*	*	*	*	*	*	*
7"	..	..	*	..	*	*	*
8"	..	..	*	..	*	*	*

SQUARE HEAD EVERDUR (SILICON BRONZE) LAG SCREWS

American Standard

(Also Termed Lag Bolts and Coach Screws)

Gimlet Point



DIAMETER	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
WIDTH (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	1 1/16"	1 1/8"
HEIGHT OF HEAD	1 1/64"	1 3/64"	1 1/4"	1 5/64"	2 1/64"	2 7/64"	1 1/2"
PACKING	100 per Box	50 per Box				25 per Box	
LENGTHS							
1 1/2"	*	*	*	..	..	..	..
2"	*	*	*	*	*	..	..
2 1/2"	*	*	*	*	*	..	..
3"	*	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*	*
4"	*	*	*	*	*	*	*
4 1/2"	..	..	*	*	*	*	*
5"	..	..	*	*	*	*	*
6"	..	..	*	*	*	*	*

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
UCTS

STAIN-
LESS

DATA

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FASTENERS • SCREWS • NUTS • BOLTS • ETC.



COPPER RIVETS



ROUND HEAD (R), COUNTERSUNK (C), FLAT HEAD (F)
In One-Pound Boxes

SIZES AVAILABLE—NUMBER PER POUND								
DIAMETER	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"	
LENGTHS								
1/8"	R 4060	R 1380	..	..	..	..	..	..
3/16"	R 3250	R 1230	RF 580	..	..	..	..	..
1/4"	R 2710	R 1050	RFC 508	RF 181	..	..	..	..
5/16"	R 2360	R 925	RFC 450	RFC 166	R 79	..	..	..
3/8"	R 2030	R 815	RFC 406	RFC 151	RFC 73	R 41	..	..
1/2"	R 1400	R 667	RFC 339	RFC 129	RFC 64	RC 37	R 23	..
5/8"	..	R 595	RFC 300	RFC 115	RFC 58	RC 33	R 21	..
3/4"	..	R 515	RFC 256	RFC 101	RFC 51	RC 30	RC 19	..
7/8"	..	..	R C 226	R C 91	R C 47	R 27	R 18	..
1"	..	..	RFC 203	RFC 82	RFC 45	RC 25	RC 16	..
1 1/4"	..	..	RF 180	RFC 70	RFC 37	RC 22	RC 14	..
1 1/2"	..	..	RF 163	RFC 61	RFC 32	RC 19	RC 13	..
1 3/4"	..	..	..	..	R 29	R 17	RC 12	..
2"	..	..	..	RFC 47	RFC 26	RC 16	RC 11	..
2 1/2"	..	..	..	..	..	RC 14	RC 10	..

Above table of weights covers Round and Flat Head Types—for Countersunk Head Sizes increase by 25%.

BRAKE BAND RIVETS
(Countersunk Head)
In One-Pound Boxes



Size No.	6	7	8	9
1/2"	..	195	226	308
5/8"	..	168	189	225
3/4"	110	142	164	211
7/8"	95	123	144	..
1"	86	108	128	168

FLAT HEAD TINNERS'
In One-Pound Boxes



*Size Number	DIMENSIONS Inches
3/4 Pound per M	.105 x .19
1 Pound per M	.111 x .20
1 1/4 Pound per M	.120 x .22
1 1/2 Pound per M	.130 x .23
1 3/4 Pound per M	.134 x .25
2 Pounds per M	.144 x .27
2 1/2 Pounds per M	.148 x .28
3 Pounds per M	.160 x .31
3 1/2 Pounds per M	.163 x .33
4 Pounds per M	.176 x .34
5 Pounds per M	.186 x .37
6 Pounds per M	.203 x .39
8 Pounds per M	.224 x .44
10 Pounds per M	.238 x .47
12 Pounds per M	.259 x .50

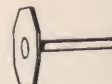
*Size Number refers to the "Trade Name" or weight of 1000 steel rivets.

OVAL HEAD BRAZIER'S
In Five-Pound Boxes



Size	NUMBER Per Pound	DIMENSIONS Inches
No. 00	229	1 1/64" x 5/16"
No. 0	141	3/16" x 3/8"
No. 1	65	1/4" x 1/2"
No. 2	45	5/32" x 1/2"
No. 3	39	19/64" x 3/8"
No. 4	25	1 1/32" x 1 1/16"
No. 5	20	23/64" x 3/4"
No. 6	17	25/64" x 13/16"
No. 7	13	7/16" x 1 3/16"
No. 8	7	17/32" x 1 1/8"
No. 10	4	5/8" x 1 1/4"

OCTAGON HEAD STORM
(RIVETS) NAILS



In 5-Pound Boxes and 100-Pound Kegs
3/4"-14 (.064")—269 Nails Per Pound

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

COPPER RIVETS

In One-Pound Boxes

FLAT HEAD BELT RIVETS—BURS—OVAL HEAD TRUNK RIVETS

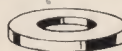
DIMENSIONS AND WEIGHTS OF RIVETS AND BURS

COPPER BELT RIVETS Packed With or Without Burs



Size No.	4	5	6	7	8	9	10	11	12	13	14	15
DIAMETER OF HEAD	1 1/16"	1 3/16"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/8"	2 1/4"	2 3/8"	2 1/2"	2 5/8"
THICKNESS OF HEAD	.110"	.105"	.090"	.070"	.063"	.058"	.055"	.050"	.045"	.040"	.030"	.025"
DIAMETER, UNDER HEAD	.270"	.250"	.228"	.191"	.181"	.161"	.151"	.141"	.137"	.118"	.102"	.090"
DIAMETER, TIP OF SHANK	.255"	.222"	.205"	.175"	.165"	.145"	.137"	.127"	.123"	.105"	.092"	.085"
Lengths Overall												
APPROXIMATE NUMBER OF PIECES PER POUND												
1/4"	..	..	..	..	255	313	386	455	525	650	871	1263
3/8"	..	..	..	..	206	260	302	350	412	510	702	934
1/2"	..	55	93	143	180	208	256	290	330	420	579	755
5/8"	..	50	83	127	150	183	216	250	287	360	490	628
3/4"	..	47	73	112	133	160	192	215	244	300	435	540
7/8"	..	43	64	99	120	143	165	190	212	275	377	480
1"	34	39	57	89	105	129	147	170	191	250	336	420
1 1/8"	..	37	54	80	94	115	136	164	174	..	..	..
1 1/4"	29	35	49	74	86	108	121	140	160	..	..	..
1 1/2"	24	30	42	62	75	93	104	125	136	..	..	..

COPPER BURS



Size No.	3	4	5	6	7	8	9	10	11	12	13	14	15	16
OUTSIDE DIAMETER	.922"	.875"	.813"	.656"	.500"	.469"	.438"	.406"	.391"	.360"	.344"	.315"	.281"	.265"
INSIDE DIAMETER	.290"	.256"	.223"	.206"	.176"	.166"	.146"	.138"	.128"	.124"	.106"	.093"	.086"	.067"
THICKNESS	.081"	.071"	.064"	.057"	.051"	.045"	.040"	.036"	.031"	.028"	.025"	.022"	.020"	.018"
APPROX. PIECES PER POUND	64	76	102	184	380	465	580	750	950	1240	1350	2051	3270	3825

OVAL HEAD TRUNK RIVETS



Lengths				1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
Size No.	DIAMETER OF HEAD Inches	DIAMETER, UNDER HEAD Inches	DIAMETER, TIP OF SHANK Inches	NUMBER PER POUND						
9	.406	.161	.145	247	215	178	162	141	130	116
12	.347	.137	.123	411	342	284	248	219	205	176

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
BRONZE
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MONEL
NICKEL
INCONEL

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BRASS RIVETS

In One-Pound Boxes

Round Head (R)

Countersunk Head (C)



STOCK SIZES AND NUMBER PER POUND

DIAMETER	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"
LENGTHS							
1/8"	R 3800	R 1230	..	..	..	..	..
3/16"	R 3040	R 1140	RC 550	..	..	..	..
1/4"	R 2570	R 950	RC 475	R 170	..	..	..
5/16"	R 2230	R 855	RC 425	R 158	..	..	..
3/8"	R 1900	R 760	RC 380	RC 144	R 70	40	..
1/2"	R 1520	R 630	RC 315	RC 123	RC 61	RC 36	R 23
5/8"	..	R 540	RC 275	RC 114	RC 55	RC 31	..
3/4"	..	R 465	RC 235	RC 105	RC 48	RC 29	R 18
7/8"	..	..	RC 210	R 85	R 46	..	..
1"	..	..	RC 190	RC 76	RC 42	RC 24	RC 15
1 1/4"	..	..	R 150	RC 67	RC 36	RC 21	RC 13
1 1/2"	..	..	..	RC 57	RC 31	RC 18	RC 12
2"	..	..	..	RC 43	RC 25	RC 15	RC 11

Countersunk Head "C" increase by 25%.

FLAT HEAD BRASS TINNERS' RIVETS

In One-Pound Boxes



*Size Number

DIMENSIONS Inches

3/4 Pound	per M	.105 x .19
1 Pound	per M	.111 x .20
1 1/4 Pound	per M	.120 x .22
1 1/2 Pound	per M	.130 x .23
2 Pounds	per M	.144 x .27
2 1/2 Pounds	per M	.148 x .28
3 Pounds	per M	.160 x .31
4 Pounds	per M	.176 x .34
5 Pounds	per M	.186 x .37
6 Pounds	per M	.203 x .39

*Size Number refers to the "Trade Name" or weight of 1000 steel rivets.

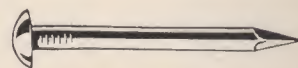
SPECIAL ITEMS

Available to order

- "U" BOLTS
- EYE BOLTS
- TAP BOLTS
- HOOK BOLTS
- TERMINAL SCREWS
- EYE SCREWS
- SPECIAL WASHERS
- SPECIAL RIVETS
- EXPANSION BOLTS AND SHIELDS

BRASS ESCUTCHEON PINS

In One-Pound Boxes



SIZE AND NUMBER PER POUND.

Gauge	10	11	12	13	14	15	16	17	18	19	20
DECIMAL	.134"	.120"	.109"	.095"	.083"	.072"	.065"	.058"	.049"	.042"	.035"
LENGTHS											
1/4"	..	..	928	1380	1825	2475	3000	3875	6300	8000	11680
3/8"	480	560	735	1025	1330	1650	2200	3075	4200	6100	8200
1/2"	385	495	575	800	1100	1400	1750	2400	3300	4775	6350
5/8"	360	385	495	675	865	1184	1500	1850	2800	3750	5150
3/4"	275	350	450	575	735	1010	1215	1630	2250	3200	4585
7/8"	240	305	370	495	675	910	1150	1350	2000	2800	..
1"	225	275	320	450	595	785	925	1200	1760	2400	..
1 1/4"	175	225	270	370	480	625	775	1000	..	..	..
1 1/2"	130	190	240	305	400	550	670	875	..	..	..
1 3/4"	120	145	210	..	..	..	..	..	..	..	..
2"	110	130	160	..	..	..	..	..	..	..	..

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

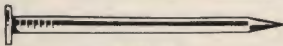
The Products Listed on This Page Are

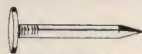
WHITEHEAD WAREHOUSE ITEMS

COPPER WIRE NAILS

Common and Slatting—Standard Sizes

In 5-Pound Boxes and 100-Pound Kegs

Penny Size	Length Inches	Gauge	DECIMAL Inches	APPROX. NUMBER Per Pound
				
COMMON				
..	5/8"	16	.065	1480
..	3/4"	16	.065	1216
..	3/4"	15	.072	955
..	7/8"	15	.072	820
2d	1"	15	.072	515
3d	1 1/4"	14	.083	400
4d	1 1/2"	12	.109	200
5d	1 3/4"	12	.109	172
5d	1 3/4"	11	.120	145
6d	2"	11	.120	128
6d	2"	10	.134	105
8d	2 1/2"	10	.134	84
10d	3"	9	.148	57
16d	3 1/2"	8	.165	40
20d	4"	6	.203	30
30d	4 1/2"	5	.220	15
40d	5"	4	.238	12
60d	6"	2	.262	7



SLATTING

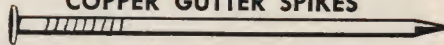
2d	1"	12	.109	270
3d	1 1/4"	10	.134	144
3d	1 1/4"	11	.120	196
3d	1 1/4"	12	.109	216
4d	1 1/2"	10	.134	124
4d	1 1/2"	11	.120	160
4d	1 1/2"	12	.109	180
5d	1 3/4"	10	.134	112
6d	2"	10	.134	100
8d	2 1/2"	10	.134	80
10d	3"	10	.134	55

EVERDUR (SILICON BRONZE) COTTER PINS



DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"
LENGTHS						
1/2"	*	*	..	..	..	..
3/4"	*	*	*	*	..	..
1"	*	*	*	*	*	..
1 1/4"	..	..	*	*	*	*
1 1/2"	..	..	*	*	*	*
2"	..	..	*	*	*	*
PACKING	1000 per Box			500 per Box		250 per Box

COPPER GUTTER SPIKES



Size Inches	NUMBER Per Pound
3/16" x 7"	19
1/4" x 8"	11

FLAT HEAD CUT COPPER NAILS

In 5-Pound Boxes and 100-Pound Kegs

Length Inches	NUMBER Per Pound	Length Inches	NUMBER Per Pound	Length Inches	NUMBER Per Pound
---------------	------------------	---------------	------------------	---------------	------------------

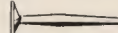
REGULAR NAILS

3/4"	800	1 1/2"	195	3"	48
7/8"	560	1 3/4"	160	3 1/2"	29
1"	480	2"	96	4 1/2"	22
1 1/4"	320	2 1/2"	64	..	..



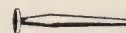
SHEATHING NAILS

1"	156
1 1/4"	112
1 1/2"	88
1 3/4"	80
2"	60



STEM NAILS

..	..
..	..
1 1/2"	50
1 3/4"	45
..	..

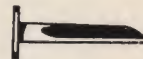


SLATTING NAILS

1"	190
1 1/4"	150
1 1/2"	135
2"	75

FLAT HEAD CUT COPPER TACKS

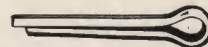
In One-Pound Boxes



Ounce Size	Length Inches	NUMBER Per Pound
2	1/4"	6400
2 1/2	5/16"	4500
3	3/8"	1980
4	7/16"	1500
6	1/2"	1375
10	5/8"	1020
14	3/4"	780
18	7/8"	576
22	1"	480

BRASS COTTER PINS

Extended Prong



DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"
LENGTHS						
1/2"	*	*	*	..	..	..
3/4"	*	*	*	*	*	..
1"	*	*	*	*	*	*
1 1/4"	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*
2"	..	*	*	*	*	*
2 1/2"	..	*	*	*	*	*
3"	..	..	*	*	*	*
PACKING	1000 per Box			500 per Box		250 per Box

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

BRASS
BRONZE
COPPER

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
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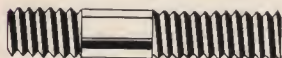
Machine Bolts	188
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STUD BOLTS AND THREADED RODS

MONEL—NICKEL—INCONEL

Threaded promptly in any alloy specified from Rods in warehouse stock. (See Rod Section for sizes available.)

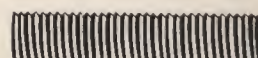
Studs



Type "A"—Tap End



Type "B"—Double End



Type "C"—Continuous Threads

When ordering Studs, clearly specify Type (A, B or C), Diameter, Threads per Inch and Length.

Threaded Rods

When ordering Threaded Rods, clearly specify Diameter and Length of Rods, Threads per Inch and Length of Threading.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

HEXAGON HEAD MONEL MACHINE BOLTS

American Standard

With or Without Hexagon Nuts

Class 2 Fit



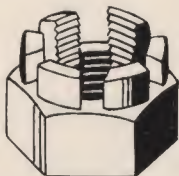
Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	5/8"	3/4"	13/16"	15/16"	1 1/8"
HEIGHT OF HEAD	5/32"	3/16"	15/64"	9/32"	19/64"	25/64"	15/32"
PACKING	100 per Box	50 per Box				25 per Box	
Lengths							
1 1/2"	*	*					
3/4"	*	*	*		*		
1"	*	*	*	*	*		
1 1/4"	*	*	*	*	*	*	
1 1/2"	*	*	*	*	*	*	
1 3/4"	*	*	*	*	*	*	
2"	*	*	*	*	*	*	*
2 1/4"	..	..	..	..	*	*	..
2 1/2"	*	*	*	*	*	*	*
3"	*	*	*		*	*	*
3 1/2"	*	*	*		*	*	*
4"	*	*	*		*	*	*
4 1/2"	..	..	*		*	*	*
5"	..	..	*		*	*	*
6"	..	..	*		*	*	*
7"	..	..	..		*	..	..
8"	..	..	..		*	..	..

HEXAGON CASTELLATED MONEL NUTS

(Light Pattern)

National Coarse and Fine Threads

Semi-Finished—Class 2 Fit



Size	Threads Per Inch		WIDTH Inches (Across Flats)	THICKNESS Inches	PACKING
	Coarse	Fine			
1/4"	20	28	7/16"	5/32"	100 per Box
5/16"	18	24	1/2"	21/64"	
3/8"	16	24	5/16"	13/32"	
7/16"	14	20	5/8"	25/64"	
1/2"	13	20	3/4"	9/16"	
5/8"	11	..	15/16"	23/32"	50 per Box
3/4"	10	..	1 1/16"	13/16"	

ROUND HEAD MONEL CARRIAGE BOLTS

Square Neck

With or Without Hexagon Nuts

Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"
Threads Per Inch	20	18	16	13	11
DIAMETER OF HEAD	9/16"	1 1/16"	1 3/16"	1 1/16"	1 5/16"
HEIGHT OF HEAD	1/8"	5/32"	3/16"	1/4"	5/16"
PACKING	100 per Box	50 per Box		25 per Box	
Lengths					
1"	*	*	*	..	..
1 1/4"	*	*	*	..	..
1 1/2"	*	*	*	*	..
2"	*	*	*	*	..
2 1/2"	*	*	*	*	..
3"	*	*	*	*	*
3 1/2"	*	*	*	*	*
4"	*	*	*	*	*
4 1/2"	..	..	*	*	*
5"	..	..	*	*	*
6"	..	..	*	*	*

COLD PUNCHED MONEL WING NUTS

For Bolts, Screws and Rods

National Coarse Threads

Class 2 Fit



Size	Threads Per Inch	APPROX. WIDTH Inches (Across Wings)	APPROX. HEIGHT OVERALL Inches	PACKING
No. 6	32	25/32"	5/16"	100 per Box
No. 8	32	13/16"	3/8"	
No. 10	24	13/16"	3/8"	
No. 10	*32	13/16"	3/8"	
1/4"	20	1 1/16"	9/16"	
5/16"	18	1 3/16"	9/16"	50 per Box
3/8"	16	1 1/2"	1 1/16"	
1/2"	13	1 7/8"	1 5/16"	

*Fine threads.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

MONEL
NICKEL
INCONEL

WELDING
AND
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ALUMI-
NUM

MUSHROOM HEAD MONEL TANNING DRUM BOLTS

Square Collar

With or Without Hexagon Nuts
Class 2 Fit—Threaded 3"



DIAMETER AND THREADS	3/4"—10	1"—8
DIAMETER AND HEIGHT OF HEAD	3" dia. x 1/2"	3 1/2" dia. x 5/8"
SIZE OF COLLAR	1" sq. x 1/2"	1 1/8" sq. x 1/2"
IN LENGTHS OF	6" to 8"	8"

HEXAGON MONEL CAP (ACORN) NUTS

(Milled from Bar)

For Bolts, Screws and Rods
National Coarse Threads

Class 2 Fit



Size	Threads Per Inch	WIDTH Inches (Across Flats)	HEIGHT Inches	PACKING
No. 6	32	5/16"	9/32"	100 per Box
No. 8	32	3/16"	9/32"	
No. 10	24	3/8"	1 1/32"	
No. 10	*32	3/8"	1 1/32"	
1 1/4"	20	7/16"	3/8"	
5/16"	18	9/16"	7/16"	
3/8"	16	5/8"	1/2"	50 per Box
1/2"	13	3/4"	9/16"	
5/8"	11	1 1/16"	3/4"	50 per Box

*Fine threads.

WIDE OVAL HEAD MONEL TANNING DRUM BOLTS

Square Neck

With or Without Hexagon Nuts
Class 2 Fit



Diameter	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	18	16	13	11	10
DIAMETER OF HEAD	1 1/16"	1 3/16"	1 5/8"	1 3/4"	1 7/8"
HEIGHT OF HEAD	5/32"	5/32"	1/4"	5/16"	5/16"
PACKING	50 per Box			25 per Box	
Lengths					
3"	*	*	*	..	..
4"	*	*	*	*	..
4 1/2"	..	*	*	*	..
5"	..	*	*	*	..
6"	..	*	*	*	*
7"	..	..	*	*	*
8"	..	..	*	*	*



MONEL TENTER HOOKS

In 5-Pound Boxes

Special Pointed and Grooved Nails adapted for
use in tanneries

Small Pattern—Approximately 116 per Pound

Large Pattern—Approximately 82 per Pound

MONEL IN THE TANNING INDUSTRY

The resistance of Monel to the corrosive action of the chemicals used in the tanning industry is time-proven. It resulted in the manufacture of specialized tannery accessory items (some of which are shown on this page) to supplement the conventional screws, nails and bolts and other fastening items.

An important factor which may sometimes be overlooked is the "friendliness" of Monel to leathers. Delicate coloring dyes and fancy leathers are safe from ruinous impurities resulting from corroded metals—impurities which cause costly streaks and stains in skins. A 4-page illustrated folder, "How many skins must you lose this year" shows some other Monel items which are proving themselves money savers to the tanning industry—write for it.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

MONEL STOVE BOLTS

American Standard—With or Without Nuts

In Boxes of 100

Class 2 Fit



Flat and Round Heads

Oven (Truss) Heads

DIAMETER	3/16"	1/4"	5/16"	3/8"	3/16"	1/4"
THREADS PER INCH	24	20	18	16	24	20
LENGTHS						
3/4"	*	*	..	..	*	*
1/2"	*	*	*	*	*	*
5/8"	*	*	*	*	*	*
3/4"	*	*	*	*	*	*
7/8"	*	*	..	..	*	*
1"	*	*	*	*	*	*
1 1/4"	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*
1 3/4"	..	*	*	*	*	*
2"	..	*	*	*	*	*

SQUARE MONEL STOVE BOLT NUTS

American Standard

Cold Punched—Class 2 Fit

In Boxes of 100



IN DIAMETERS OF

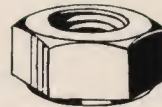
3/16"—24 1/4"—20

HEXAGON MONEL BOLT NUTS

Semi-Finished

National Coarse and Fine Threads

Class 2 Fit



AMERICAN STANDARD REGULAR

Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches		PACK-ING
			Full Nut	Jam Nut	
1/4"	20	7/16"	13/64"	9/64"	100 per Box
5/16"	18	9/16"	1/4"	11/64"	
3/8"	16	5/8"	5/16"	13/64"	
7/16"	14	3/4"	23/64"	15/64"	
1/2"	13	13/16"	27/64"	19/64"	
5/8"	11	1"	17/32"	23/64"	50 per Box
3/4"	10	1 1/8"	41/64"	27/64"	
7/8"	9	1 5/16"	3/4"	31/64"	25 per Box
1"	8	1 1/2"	55/64"	35/64"	
1 1/8"	7	1 11/16"	31/32"	39/64"	Bulk
1 1/4"	7	1 7/8"	1 1/16"	23/32"	
1 1/2"	6	2 1/4"	1 9/32"	27/32"	

AMERICAN STANDARD HEAVY

1/4"	20	1/2"	15/64"	..	100 per Box
5/16"	18	5/8"	19/64"	..	
3/8"	16	11/16"	23/64"	..	
1/2"	13	7/8"	31/64"	..	
5/8"	11	1 1/16"	37/64"	..	50 per Box
3/4"	10	1 1/4"	47/64"	..	
7/8"	9	1 7/16"	57/64"	..	25 per Box
1"	8	1 5/8"	63/64"	..	
1 1/8"	7	1 13/16"	1 1/4"	..	Bulk
1 1/4"	7	2"	1 7/32"	..	
1 1/2"	6	2 3/8"	1 1/2"	..	

AMERICAN STANDARD LIGHT (SAE)

1/4"	28	7/16"	7/32"	..	100 per Box
5/16"	24	1/2"	1 1/64"	..	
3/8"	24	9/16"	21/64"	..	
1/2"	20	3/4"	7/16"	..	

HEXAGON MONEL MACHINE SCREW NUTS

American Standard—National Coarse Threads

Cold Punched—Single Chamfer—Class 2 Fit

In One Gross Boxes



Size	4	6	8	10	10	12	1/4"	5/16"	3/8"
Threads Per Inch	40	32	32	24	*32	24	20	18	16
WIDTH (Across Flats)	1/4"	5/16"	11/32"	3/8"	3/8"	7/16"	7/16"	9/16"	5/8"
THICKNESS	.093"	.109"	.125"	.125"	.125"	.156"	.188"	.219"	.250"

*Fine threads.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

MONEL
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FLAT MONEL WASHERS

For Bolts, Screws and Rods



DIMENSIONS						
Screw Size	Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	APPROXIMATE NUMBER Per Pound	PACKING
REGULAR TYPE						
6	..	3/8"	.147	.031	1110	1000 per Box
8	..	3/8"	.172	.031	1175	
10	..	7/16"	.200	.031	830	
12	..	1/2"	.227	.031	665	
14	..	9/16"	.250	.031	500	
..	1/4"	1 1/16"	.260	.050	200	100 per Box
..	5/16"	7/8"	.337	.050	123	
..	3/8"	1"	.391	.062	76	
..	7/16"	1 1/8"	1/2"	.062	63	
..	1/2"	1 1/4"	9/16"	.078	40	
..	5/8"	1 1/2"	1 1/16"	.093	24	
..	3/4"	1 7/8"	1 3/16"	.109	12	
..	7/8"	2 1/4"	1 5/16"	.125	7	
..	1"	2 1/2"	1 1/2"	.125	6	
PLATE WASHERS						
..	1/4"	3/4"	5/16"	.062	140	100 per Box
..	5/16"	7/8"	3/8"	.062	102	
..	3/8"	1"	7/16"	.078	64	
..	7/16"	1 1/4"	1/2"	.093	34	
..	1/2"	1 3/8"	9/16"	.093	27	
..	5/8"	1 3/4"	1 1/16"	.125	13	
..	3/4"	2"	1 3/16"	.125	9	
..	7/8"	2 1/4"	1 5/16"	.156	7	
..	1"	2 1/2"	1 1/2"	.156	6	
..	1 1/8"	2 3/4"	1 3/4"	.156	5	
..	1 1/4"	3"	1 3/8"	.156	4	

K-MONEL (SPRING) LOCK WASHERS

(Kantlink Type)

ASA—Medium Section



Size	SECTION Inches	APPROX. NET WEIGHT Per 1000	PACKING
No. 2	.035 x .020	.11 lb.	1000 per Box
No. 3	.040 x .025	.17 lb.	
No. 4	.040 x .025	.17 lb.	
No. 6	.047 x .031	.31 lb.	
No. 8	.055 x .040	.54 lb.	
No. 10	.062 x .047	.79 lb.	
No. 12	.070 x .056	1.19 lb.	
1/4"	.109 x .062	2.59 lbs.	
5/16"	.125 x .078	4.44 lbs.	
3/8"	.141 x .094	7.00 lbs.	
7/16"	.156 x .109	10.21 lbs.	500 per Box
1/2"	.171 x .125	14.36 lbs.	
5/8"	.203 x .156	25.87 lbs.	
3/4"	.234 x .188	42.93 lbs.	100 per Box
7/8"	.266 x .219	67.39 lbs.	
1"	.297 x .250	96.62 lbs.	

MONEL FINISHING WASHERS

For Use with Flat and Oval Screws

In Boxes of 1000



Screw Size	OUTSIDE DIAMETER Inches	HOLE DIAMETER Inches
No. 6	7/16"	.167
No. 8	1/2"	.193
No. 10	3/4"	.228
No. 12	5/8"	.234

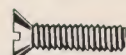
Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

MONEL MACHINE SCREWS

American Standard
National Coarse Threads
Rolled Threads—Class 2 Fit



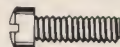
FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)



FILLISTER HEAD (P)



TRUSS HEAD (T)

TAPER END (1)						CROSS HEAD (1)			
Diameter	4	6	8	10	10	1/4"	5/16"	3/8"	1/2"
Threads	40	32	32	24	*32	20	18	16	13
DECIMAL	.112"	.138"	.164"	.190"	.190"	.250"	.312"	.375"	.500"
PACKING	One Gross per Box							1/2 Gross per Box	
Lengths									
3/16"	..	R	..	..	..	..	..	..	..
1/4"	FR	FR P	FR PT	FR T	R	..	..	..	..
5/16"	..	FRO	P	..	R	R	..	..	..
3/8"	FR	FROPT	FROPT	FRO T	FROP	FR PT	..	..	..
1/2"	FR	FROPT	FROPT	FROPT	FROP	FROP	FRP	R	..
5/8"	..	FROP	FR P	FROP	FROP	FROP	FRP	..	..
3/4"	FR	FROPT	FROPT	FROPT	FROPT	FROP	FRP	FRP	F
7/8"	..	R	FR	FROPT	FROP	FR	FRP	..	..
1"	..	FR P	FROPT	FROPT	FROP	FROP	FRP	FRP	F
1 1/4"	..	FR	FROP	FROP	FROP	FROP	FRP	FR	F
1 1/2"	..	FR	FR	FR	FROP	FROP	FR	FR	F
1 3/4"	..	..	FR	..	..	FR	FR	FR	F
2"	..	..	F	FR	FR	FROP	FR	FR	F
2 1/2"	..	..	..	F	..	FR	FR	F	F
3"	..	..	..	..	..	FR	F	F	F

*Fine threads.

Screws 2 inches and shorter are threaded to the head; over 2 inches long they are threaded 2 inches.

Phillips-Recessed Head Machine Screws and Wood Screws can also be furnished from mill depending upon quantity.

MONEL WOOD SCREWS

American Standard—Class 2 Fit
In One Gross Boxes



FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)

Diameter	4	5	6	7	8	9	10	12	14	16	18
DECIMAL	.112"	.125"	.138"	.151"	.164"	.177"	.190"	.216"	.242"	.268"	.294"
Lengths											
1/2"	FRO	F	FRO	..	..	..	..	..	..	..	..
5/8"	FRO	F	FRO	FRO	..	..	F	..	..	..	..
3/4"	FRO	F	FRO	FRO	FRO	FR	FR	..	..	..	..
7/8"	..	F	FRO	FRO	FRO	..	..	..	..	..	..
1"	..	F	F	FRO	FRO	F	FRO	FRO	FR	..	..
1 1/4"	..	..	F O	F O	FRO	F	FRO	FR	FR	F	..
1 1/2"	..	..	F O	F O	FRO	F	FRO	FRO	FR	F	..
1 3/4"	..	..	..	..	F	..	FR	FR	F	..	..
2"	..	..	..	..	O	..	FRO	FRO	FR	F	F
2 1/2"	..	..	..	..	..	..	F	F O	FR	F	F
3"	..	..	..	..	..	..	..	F O	F	F	F
3 1/2"	..	..	..	..	..	..	..	..	..	F	F

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
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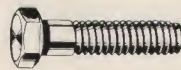
WHITEHEAD WAREHOUSE ITEMS

FASTENERS • SCREWS • NUTS • BOLTS • ETC.



HEXAGON HEAD MONEL CAP SCREWS

American Standard
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH (Across Flats)	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	21/64"	3/8"	15/32"	9/16"
LENGTH OF THREAD	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 1/2"	1 3/4"
PACKING	100 per Box			50 per Box			25 per Box
Lengths							
3/8"	*	..	..	..	..	..	..
1/2"	*	*	*	..	..	..	..
5/8"	*	*	*	..	*	..	..
3/4"	*	*	*	..	*	..	..
7/8"	*	*	*	..	*	..	..
1"	*	*	*	*	*	*	..
1 1/8"	*	*	*	..	..	..	..
1 1/4"	*	*	*	*	*	*	..
1 1/2"	*	*	*	*	*	*	..
1 3/4"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/2"	..	..	*	..	*	*	*
3"	..	..	*	..	*	*	*

SOCKET HEAD MONEL CAP SCREWS

(With Hexagon Socket)
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads	20	18	16	13	11	10
DIAMETER OF HEAD	3/8"	7/16"	9/16"	3/4"	7/8"	1"
THICKNESS OF HEAD	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
SOCKET WIDTH (Across Flats)	3/16"	7/32"	5/16"	3/8"	1/2"	9/16"
PACKING	100 per Box			50 per Box		25 per Box
Lengths						
3/8"	*	..	..	..	..	..
1/2"	*	*	*	..	..	..
5/8"	*	*	*	..	..	..
3/4"	*	*	*	*	..	..
7/8"	..	*	..	..	..	..
1"	*	*	*	*	*	..
1 1/4"	..	*	*	*	*	..
1 1/2"	..	*	*	*	*	*
2"	..	..	*	*	*	*

Griphead Cap Screws, with Non-Slip Knurl, can also be supplied—prompt shipment.

SOCKET HEAD MONEL SET SCREWS

(With Hexagon Socket)
Cup Point



Diameter	6	8	10	10	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	32	32	24	*32	20	18	16	13	11	10
DECIMAL SIZE	.138"	.164"	.190"	.190"	.250"	.312"	.375"	.500"	.625"	.750"
SOCKET WIDTH (Across Flats)	1/16"	5/64"	3/32"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
PACKING	100 per Box						50 per Box			
Lengths										
3/16"	..	*	*	..	..	..	..	..	..	..
1/4"	*	*	*	*	*	*	..	..	..	..
5/16"	*	*	*	*	*	*	*	..	..	..
3/8"	*	*	*	*	*	*	*	..	..	..
1/2"	*	*	*	*	*	*	*	*	..	..
5/8"	..	..	..	..	*	*	*	..	*	..
3/4"	..	*	*	*	*	*	*	*	*	*
1"	..	..	*	*	*	*	*	*	*	*
1 1/4"	..	..	..	..	..	*	..	*	*	*
1 1/2"	..	..	..	..	..	..	..	*	*	*
2"	..	..	..	..	..	..	..	..	*	*

*Fine Threads.

3/4" x 2" size packed 25 per Box.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

SQUARE HEAD MONEL SET SCREWS

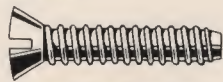
American Standard
Cup Point—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10
WIDTH (Across Flats)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	3/8"	15/32"	9/16"
PACKING	100 per Box			50 per Box	25 per Box	
Lengths						
3/8"	*	..	..	..	..	..
1/2"	*	*	*	..	..	..
5/8"	*	*	*	..	..	..
3/4"	*	*	*	*	*	..
1"	*	*	*	*	*	..
1 1/4"	..	*	*	*	*	..
1 1/2"	..	*	*	*	*	*
2"	..	..	..	*	*	*

MONEL SHEET METAL SCREWS

Type "Z"—Self Tapping
In One Gross Boxes



ROUND HEAD (R)

OVAL HEAD (O)

Diameter	4	6	8	8	10	10	14
Length	1/4"	3/8"	3/8"	1/2"	1/2"	5/8"	5/8"
DECIMAL SIZE	.112"	.138"	.165"	.165"	.191"	.191"	.251"
HEAD STYLE	R	R	R	R-O	R	R-O	R

Type "A" Sheet Metal Screws can also be supplied from mill depending upon quantity.

MONEL WIRE STAPLES

Round Shoulder
In One-Pound Boxes



Length Inches	Gauge	DECIMAL SIZE Inches	APPROX. NUMBER Per Pound
3/8"	18	.049	2700
3/8"	16	.065	1200
1/2"	18	.049	1900
1/2"	16	.065	1100
5/8"	16	.065	700
3/4"	16	.065	600
3/4"	14	.083	550
7/8"	13	.072	500
1"	13	.095	350

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

SQUARE HEAD MONEL LAG SCREWS

(Also Termed Lag Bolts and Coach Screws)



American Standard—Gimlet Point

Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
WIDTH (Across Flats)	3/8"	1/2"	9/16"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	1 1/64"	13/64"	1/4"	2 1/64"	2 7/64"	1/2"
PACKING	100 per Box		50 per Box		25 per Box	
Lengths						
1 1/2"	*	*	*	..	..	..
2"	*	*	*	..	..	..
2 1/2"	*	*	*	*	..	..
3"	*	*	*	*	..	..
3 1/2"	..	*	*	*	..	..
4"	..	..	*	*	*	..
4 1/2"	..	..	*	*	*	..
5"	..	..	*	*	*	*
6"	..	..	..	*	*	*
7"	..	..	..	*	*	*
8"	..	..	..	*	*	*

MONEL HANGER SCREWS

(Also Termed Hanger Bolts)

With or Without Hexagon Nuts

Made to Order Promptly



DIAMETER 1/4" 5/16" 3/8" 1/2" 5/8" 3/4"

LENGTHS: To suit your requirements.

K-MONEL DRY ROOM POLE PINS

Needle Point

In Boxes of 500

(Especially Adapted for Carpet Cleaning Plants)



Double Point

2" No. 14 (.078") For Round Poles



Flat Head

1 3/8" No. 12 (.102") For Half Round Poles

Steel Inserting Tools
(For use with Double Pointed Pins)

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

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WHITEHEAD WAREHOUSE ITEMS



MONEL RIVETS

Bright Annealed
In One-Pound Boxes

FLAT HEAD TINNERS'



Size	DIMENSIONS Inches
1/2 lb. per M	.089 x .16
5/8 lb. per M	.095 x .17
3/4 lb. per M	.105 x .19
1 lb. per M	.111 x .20
1 1/4 lb. per M	.120 x .22
1 1/2 lb. per M	.130 x .23
1 3/4 lb. per M	.134 x .25
2 lbs. per M	.144 x .27
2 1/2 lbs. per M	.148 x .28
3 lbs. per M	.160 x .31
3 1/2 lbs. per M	.165 x .33
4 lbs. per M	.176 x .34
5 lbs. per M	.186 x .37
6 lbs. per M	.203 x .39
7 lbs. per M	.216 x .41
8 lbs. per M	.224 x .44
10 lbs. per M	.238 x .47
12 lbs. per M	.259 x .50

OVAL HEAD BRAZIER'S



Size	PIECES Per Pound	DIMENSIONS Inches
No. 00	225	1 1/4" x 5/16"
No. 0	140	3/16" x 3/8"
No. 1	65	1/4" x 1/2"
No. 2	45	5/32" x 1/2"
No. 3	39	1/4" x 5/8"
No. 4	25	1 1/32" x 1 1/16"

FLAT HEAD BELT



SIZES AVAILABLE AND NUMBER PER POUND

Diameter	No. 12	No. 10	No. 8
Lengths			
3/8"	400	..	200
1/2"	320	250	175
5/8"	280	210	145
3/4"	240	190	135
1"	..	145	100

FLAT BURS

For Use with Belt Rivets
In Boxes of 1000



Diameter	No. 12	No. 10	No. 8
OUTSIDE DIAMETER	.360"	.409"	.469"
INSIDE DIAMETER	.124"	.138"	.166"
THICKNESS	.025"	.031"	.040"
NUMBER PER POUND	1243	750	465



ROUND HEAD (R)



FLAT HEAD (F)



90° COUNTERSUNK HEAD (C)

SIZES AND TYPES AVAILABLE—
NUMBER PER POUND

Diameter	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
Lengths								
1/8"	R 4000	RFC 1400	..	..	..	..	..	..
3/16"	R 3200	RFC R C 1200	580	..	200	..	..	..
1/4"	R 2700	RFC R C 1000	500	290	180	85	..	..
5/16"	R 2350	R C RFC R C R 900	450	265	165	79	..	..
3/8"	R 2000	R C RFC R C RFC 800	400	235	150	73	..	..
7/16"	..	..	365	..	140	..	..	..
1/2"	..	R C 660	RFC 330	200	RFC R C 130	RFC R C 64	RF 37	R 24
*9/16"	..	..	..	..	125	..	..	..
5/8"	..	R 570	RFC 290	..	RFC R C 120	RFC R C 57	R 34	R 21
*1 1/16"	..	..	..	..	115	..	..	..
3/4"	..	R 490	RFC 250	..	RFC R C 110	RFC R C 50	RF 30	R 19
*1 3/16"	..	..	..	..	100	..	..	..
7/8"	..	..	..	..	R R 90	R R 48	R 27	R 18
*1 5/16"	..	..	..	..	85	..	..	..
1"	..	..	RFC 200	..	RFC R C 80	RFC R C 45	RF 25	R 16
1 1/8"	..	..	..	..	R R 75	R R 41	..	..
1 1/4"	..	..	..	..	RFC R C 70	RFC R C 37	R 22	R 14
1 1/2"	..	..	..	..	RFC R C 60	RFC R C 32	R 19	R 13
1 3/4"	..	..	..	..	R R 29	R R 17	R 12	..
2"	..	..	..	..	RFC R C 47	RFC R C 26	R 16	R 11

The number of Rivets per pound shown are for Round and Flat Types—for Countersunk Head, increase the number of pieces by 25%.

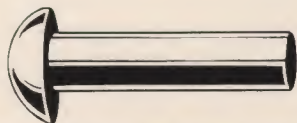
*These sizes are particularly used for the manufacture and repair of laundry machinery.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

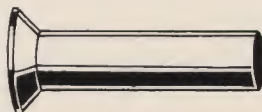
MONEL AIRCRAFT RIVETS

Bright Annealed

In One-Pound Boxes



ROUND HEAD (R)—DRAWING AN435M



100° COUNTERSUNK HEAD (C)—DRAWING AN427M

SIZES AND TYPES AVAILABLE

DASH NUMBERS AND NUMBER PER POUND

Diameter	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"
Lengths						
	2-2	3-3	4-3	..	..	..
3/16"	R-3200	R-1200	R- 580	..	..	..
	..	C-1920	C-1075	..	..	..
	2-4	3-4	4-4	5-4	6-4	..
1/4"	R-2700	R-1000	R- 500	R-290	R-180	..
	..	C-1500	C- 840	C-520	..	..
	2-5	3-5	4-5	5-5	6-5	..
5/16"	R-2350	R- 900	R- 450	R-265	R-165	..
	..	C-1230	C- 690	C-430	..	..
	2-6	3-6	4-6	5-6	6-6	8-6
3/8"	R-2000	R- 800	R- 400	R-235	R-150	R-73
	..	C-1045	C- 585	C-370	C-255	..
	..	3-7	4-7	5-7	6-7	..
7/16"	..	R- 715	R- 365	R-218	R-140	..
	..	C- 905	C- 510	C-323	C-230	..
	..	3-8	4-8	5-8	6-8	8-8
1/2"	..	R- 660	R- 330	R-200	R-130	R-63
	..	C- 800	C- 450	C-285	C-195	..
	..	..	4-9	5-9	6-9	..
9/16"	..	..	R- 310	R-185	R-120	..
	..	..	C- 400	C-255	C-175	..
	..	3-10	4-10	5-10	6-10	8-10
5/8"	..	R- 570	R- 290	R-175	R-110	R-56
	..	C- 650	C- 365	C-230	C-160	..
	..	3-12	4-12	5-12	6-12	8-12
3/4"	..	R- 490	R- 250	R-150	R-100	R-50
	..	C- 545	C- 305	C-195	C-135	..
	..	..	4-14	5-14	6-14	..
7/8"	..	..	R- 225	R-135	R- 90	..

	..	..	4-16	5-16	6-16	8-16
1"	..	..	R- 200	R-120	R- 81	R-41
	..	..	C- 230	C-150	C-103	..

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

MONEL
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WELDING
AND
BRAZING

SPECIAL
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UCTS

STAIN-
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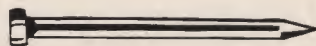
MISC

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MONEL TAPER PINS

(Taper 1/4" in 12 Inches)

Size	No. 00	No. 0	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8
DIAMETER	.141"	.156"	.172"	.193"	.219"	.250"	.289"	.344"	.409"	.492"
Lengths										
3/4"	*	..	..	..	..	..	..	..	..	..
1"	*	*	*	*	*	*	*	*	*	*
1 1/4"	*	*	*	*	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*	*	*	*
2 1/4"	..	*	*	*	*	*	*	*	*	*
2 1/2"	..	*	*	*	*	*	*	*	*	*
2 3/4"	..	..	..	*	*	*	*	*	*	*
3"	..	..	..	*	*	*	*	*	*	*
3 1/4"	..	..	..	..	*	*	..	*	*	*
3 1/2"	..	..	..	..	*	*	..	*	*	*
3 3/4"	..	..	..	..	*	*	..	*	*	*
4"	..	..	..	..	*	*	..	*	*	*
PACKING	100 per Box							50 per Box		



MONEL WIRE BRADS

In One-Pound Boxes

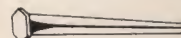
Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
3/4"	18	.049	1800
3/4"	17	.058	1300
1"	16	.065	800

FLAT HEAD CUT MONEL TACKS

In One-Pound Boxes and 100-Pound Kegs

Ounce Size	Length Inches	NUMBER Per Pound
2	1/4"	5300
2 1/2	5/16"	3800
3	3/8"	2850
4	7/16"	1710
6	1/2"	1510
10	5/8"	885
14	3/4"	810
18	7/8"	610
22	1"	500

REGULAR CUT MONEL NAILS



In 5-Pound Boxes and 100-Pound Kegs

Penny Size	Length Inches	NUMBER Per Pound
..	3/4"	570
..	7/8"	540
2d	1"	445
3d	1 1/4"	270
4d	1 1/2"	190
6d	2"	92
8d	2 1/2"	65
10d	3"	42
20d	4"	25

MONEL COTTER PINS



Diameter	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	
PACKING	1000 per Box						500 per Box	250 per Box	125 per Box
Lengths									
3/8"	*		..	..	..	..	..	..
1/2"	*	*	..	..	..	..	..	..
3/4"	*	*	*	*	*	..	..	..
1"	*	*	*	*	*	*	..	..
1 1/4"	*	*	*	*	*	*	..	..
1 1/2"	*	*	*	*	*	*	..	..
2"	*	*	*	*	*	*	*	*	
2 1/2"	..	*	*	*	*	*	*	*	
3"	..	..	*	*	*	*	*	*

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

MONEL ANCHORFAST NAILS



Highly resistant to all alkalis and to practically every acid, Monel gives ANCHORFAST exceptional durability under corrosive conditions. ANCHORFAST nails may be safely used in contact with such common corrosives as salt, lye, sulfuric acid, and caustic soda—and, since ANCHORFAST is absolutely rust-proof and is not affected by wood tannates, it has no tendency to rot the wood and thus cause loosening of the fastening. ANCHORFAST stays fast, its annular grooves gripping in such a way that backing out or loosening from vibration is virtually impossible.

Possessing these valuable characteristics, the ANCHORFAST nail affords distinct advantages for roofing, boat building, dry kiln construction, asbestos and insulated siding, pickling tanks and vats, cat walks and for all types of wood construction involving severe or long service.

In comparative tests conducted at an impartial leading boat yard, the Monel ANCHORFAST was tested with other fasteners with the following results:

	Pull Force Required
1. Monel ANCHORFAST nail, 2 inches long.....	840 lbs.
2. Two-inch No. 8 woodscrew, 3/32" pilot hole.....	816 lbs.
3. 2 1/2" copper nail, riveted.....	708 lbs.
4. Galvanized wire nail, clinched.....	642 lbs.
5. Galvanized wire nail, unclinched.....	552 lbs.
6. Galvanized cut nail, unclinched.....	510 lbs.

In other words it takes 65% more force to pull ANCHORFAST than to pull an unclinched galvanized nail—31% more than to pull a clinched nail—19% more than for a riveted copper nail—and ANCHORFAST actually had a 3% edge on a wood screw of comparable size!

Because of Monel's strength and stiffness, pilot holes are unnecessary, even in such hard wood as the white oak used in the test. Loss of time and material through bending are minimized—the ease with which ANCHORFAST nails may be driven speeds up the job. In some cases labor costs can be cut as much as 25%—and in every case ANCHORFAST more than pays for its slightly higher cost, not only by simplifying fastening, but through its unusual length of life.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

FLAT HEAD "ANCHORFAST" (MONEL) WIRE NAILS



In 5-Pound Boxes and 100-Pound Kegs

Penny Size	Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
COMMON NAILS				
..	5/8"	16	.065	1400
..	3/4"	16	.065	950
..	7/8"	16	.065	825
2d	1"	15	.072	775
3d	1 1/4"	14	.083	525
4d	1 1/2"	13	.095	275
5d	1 3/4"	13	.095	200
6d	2"	12	.109	175
8d	2 1/2"	11	.120	85
10d	3"	9	.148	50
16d	3 1/2"	8	.165	25
20d	4"	6	.203	20
30d	4 1/2"	5	.220	18
40d	5"	4	.238	15
60d	6"	2	.262	8

Penny Size	Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
SLATING NAILS				
2d	1"	12	.109	250
3d	1 1/4"	11	.120	180
4d	1 1/2"	10	.134	125
6d	2"	10	.134	90
8d	2 1/2"	10	.134	80
10d	3"	10	.134	50

Penny Size	Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
SIDING NAILS				
4d	1 1/2"	15	.072	495
5d	1 3/4"	14	.083	250

FLAT "ANCHORFAST" (MONEL) BOAT NAILS



In 5-Pound Boxes and 100-Pound Kegs

Penny Size	Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
2d	1"	12	.109	350
3d	1 1/4"	12	.109	280
3d	1 1/4"	10	.134	155
4d	1 1/2"	14	.083	400
4d	1 1/2"	12	.109	230
4d	1 1/2"	10	.134	135
4d	1 1/2"	8	.165	95
5d	1 3/4"	10	.134	120
5d	1 3/4"	8	.165	83
6d	2"	10	.134	105
6d	2"	8	.165	75
7d	2 1/4"	10	.134	94
7d	2 1/4"	8	.165	64
8d	2 1/2"	10	.134	84
8d	2 1/2"	8	.165	58
9d	2 3/4"	8	.165	53
10d	3"	8	.165	48

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
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STAIN-
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INDEX

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

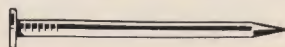
FASTENERS • SCREWS • NUTS • BOLTS • ETC.



FLAT HEAD MONEL WIRE NAILS

In 5-Pound Boxes and 100-Pound Kegs

Penny Size	Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
------------	---------------	-------	---------------------	------------------



FLAT HEAD COMMON NAILS

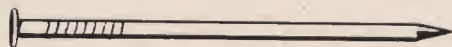
..	5/8"	16	.065	1400
..	3/4"	16	.065	950
..	7/8"	16	.065	825
2d	1"	15	.072	775
3d	1 1/4"	14	.083	525
4d	1 1/2"	13	.095	275
5d	1 3/4"	13	.095	200
6d	2"	12	.109	175
8d	2 1/2"	11	.120	100
10d	3"	9	.148	50
16d	3 1/2"	8	.165	25
20d	4"	6	.203	20
30d	4 1/2"	5	.220	28
40d	5"	4	.238	15
60d	6"	2	.262	8

FLAT HEAD SLATING NAILS

2d	1"	12	.109	250
3d	1 1/4"	11	.120	180
4d	1 1/2"	10	.134	125
6d	2"	10	.134	90
8d	2 1/2"	10	.134	80
10d	3"	10	.134	50

FINISHING NAILS

2d	1"	16	.065	1200
3d	1 1/4"	15	.072	725
4d	1 1/2"	15	.072	530
6d	2"	13	.095	280
8d	2 1/2"	12	.109	180
10d	3"	11	.120	110



FLAT HEAD GUTTER SPIKES

..	7"	3/16"	.187	19
----	----	-------	------	----

SPECIAL ITEMS

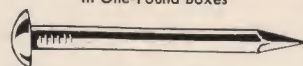
Available to Order

"U" Bolts	Special Washers
Eye Bolts	Special Rivets
Tap Bolts	Expansion Bolts and Shields
Hook Bolts	Link Chain
Terminal Screws	Plain and Corrugated Gaskets
Eye Screws	Asbestos Lined Gaskets

Identification Tags and Checks

MONEL ESCUTCHEON PINS

In One-Pound Boxes



Length Inches	Gauge	DECIMAL SIZE Inches	NUMBER Per Pound
3/8"	18	.049	4000
3/8"	16	.065	2100
1/2"	18	.049	3100
1/2"	16	.065	1670
1/2"	14	.083	1045
5/8"	18	.049	2660
5/8"	16	.065	1400
5/8"	14	.083	820
5/8"	13	.095	640
3/4"	16	.065	1155
3/4"	15	.072	960
3/4"	14	.083	700
3/4"	13	.095	545
7/8"	16	.065	1040
7/8"	14	.083	640
1"	16	.065	880
1"	14	.083	565
1"	13	.095	425
1 1/4"	14	.083	455

NICKEL FASTENERS

HEXAGON HEAD NICKEL MACHINE BOLTS

American Standard

With or Without Hexagon Nuts

Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10

Width of Head (Across Flats)	3/8"	1/2"	9/16"	3/4"	1 1/16"	1 1/8"
------------------------------	------	------	-------	------	---------	--------

HEIGHT OF HEAD	5/32"	3/16"	1/8"	1/4"	5/16"	3/8"
----------------	-------	-------	------	------	-------	------

PACKING	100 per Box	50 per Box	25 per Box
---------	-------------	------------	------------

Lengths					
1"	*	*	*	*	..
1 1/4"	*	*	*	*	..
1 1/2"	*	*	*	*	..
2"	*	*	*	*	*
2 1/2"	*	*	*	*	*
3"	*	*	*	*	*
3 1/2"	..	*	*	*	*
4"	..	*	*	*	*

For shorter lengths than 1", consult Cap Screw List.

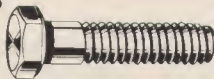
Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

HEXAGON HEAD NICKEL CAP SCREWS

American Standard
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"
Threads Per Inch	20	18	16	13	11
Width of Head (Across Flats)	7/16"	1/2"	9/16"	3/4"	7/8"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	3/8"	15/32"
LENGTH OF THREADS	3/4"	7/8"	1"	1 1/4"	1 1/2"
PACKING	100 per Box		50 per Box		
Lengths					
1 1/2"	*	..	..	..	..
5/8"	*	*	..	..	..
3/4"	*	*	*	..	..
1"	*	*	*	*	..
1 1/4"	*	*	*	*	..
1 1/2"	*	*	*	*	*
2"	..	..	..	*	*

HEXAGON NICKEL BOLT NUTS

American Standard Regular
Semi-Finished
Class 2 Fit



Diameter of Bolt	Threads Per Inch	DIMENSIONS Inches	PACKING
1/4"	20	7/16" x 1 1/4"	100 per Box
5/16"	18	9/16" x 1 1/4"	
3/8"	16	5/8" x 5/8"	
1/2"	13	1 1/16" x 2 3/4"	
5/8"	11	1" x 1 7/32"	50 per Box
3/4"	10	1 1/8" x 4 1/4"	

FLAT NICKEL WASHERS

For Bolts, Screws and Rods

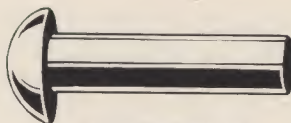


Bolt Size	OUTSIDE DIAM. Inches	INSIDE DIAM. Inches	THICK-NESS Inches	APPROX. NUMBER Per Pound	PACK-ING
1/4"	1 1/16"	.260	.050	270	100 per Box
5/16"	7/8"	.337	.050	194	
3/8"	1"	.391	.062	100	
1/2"	1 1/4"	9/16"	.062	35	
5/8"	1 1/2"	1 1/16"	.093	20	
3/4"	1 7/8"	1 3/16"	.093	12	

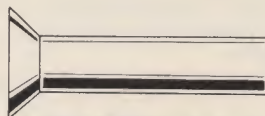
Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

NICKEL RIVETS

In One-Pound Boxes



ROUND HEAD (R)



COUNTERSUNK HEAD (C)

STYLE AND NUMBER PER POUND

DIAMETER	1/8"	3/16"	1/4"	5/16"	3/8"
LENGTHS					
1/4"	R 500	..	..	..	..
5/16"	R 450	R 160	..	..	..
3/8"	R C 400	R C 150	..	..	..
1/2"	R C 330	R C 139	R 64	..	..
5/8"	R C 290	R C 120	R 57	..	..
3/4"	R C 250	R C 110	R 50	R 30	..
1"	..	R C 80	R 45	R 25	R 16

There are about 25% more Countersunk Rivets per pound than Round Head.

FLAT HEAD NICKEL TINNERS' RIVETS

In One-Pound Boxes



Size	DIMENSIONS Inches
1 lb. per M	.111 x .20
1 1/4 lb. per M	.120 x .22
1 1/2 lb. per M	.130 x .23
2 lbs. per M	.144 x .27
2 1/2 lbs. per M	.148 x .28
3 lbs. per M	.160 x .31
4 lbs. per M	.176 x .34
5 lbs. per M	.186 x .37

MONEL
NICKEL
INCONEL

WELDING
AND
BRAZING

SPECIAL
PROD-
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STAIN-
LESS

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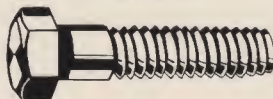
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INCONEL FASTENERS

HEXAGON HEAD INCONEL MACHINE BOLTS

American Standard
With or Without Hexagon Nuts
Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	5/32"	3/16"	15/64"	19/64"	25/64"	15/32"
PACKING	100 per Box	50 per Box			25 per Box	
Lengths						
2"	*	*	*	..	..	..
2 1/2"	*	*	*	*	*	..
3"	*	*	*	*	*	*
3 1/2"	..	*	*	*	*	*
4"	..	*	*	*	*	*

For smaller sizes consult Cap Screw List.

HEXAGON INCONEL BOLT NUTS

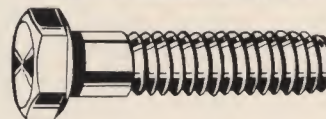
American Standard Regular
Semi-Finished—Class 2 Fit



Diameter	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches	PACKING
1/4"	20	7/16"	13/64"	100 per Box
5/16"	18	9/16"	1/4"	
3/8"	16	5/8"	5/16"	
1/2"	13	13/16"	27/64"	
5/8"	11	1"	17/32"	50 per Box
3/4"	10	1 1/8"	11/64"	

HEXAGON HEAD INCONEL CAP SCREWS

American Standard—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"
Threads Per Inch	20	18	16	13	11
WIDTH (Across Flats)	7/16"	1/2"	9/16"	3/4"	7/8"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	3/8"	15/32"
LENGTH OF THREADS	3/4"	7/8"	1"	1 1/4"	1 1/2"
PACKING	100 per Box	50 per Box			
Lengths					
1 1/2"	*	*	..	..	..
5/8"	*	*	..	..	..
3/4"	*	*	*	..	..
1"	*	*	*	*	..
1 1/4"	*	*	*	*	*
1 1/2"	*	*	*	*	*
2"	..	..	*	*	*

FLAT INCONEL WASHERS

For Bolts, Screws and Rods



Bolt Size	OUTSIDE DIAM. Inches	INSIDE DIAM. Inches	THICKNESS Inches	APPROX. NUMBER Per Pound	PACKING
1/4"	11/16"	.260	.050	270	100 per Box
5/16"	7/8"	.337	.050	194	
3/8"	1"	.391	.062	100	
1/2"	1 1/4"	9/16"	.062	35	
5/8"	1 1/2"	11/16"	.093	20	
3/4"	1 7/8"	13/16"	.093	12	

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

INDEX—STAINLESS STEEL AND MISC. FASTENERS

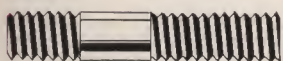
BOLTS	Page No.	SCREWS—Continued	Page No.
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The standard alloys used in the manufacture of quality Stainless Steel fasteners are Types 302, 303 and 304 and are the alloys carried in stock. These alloys will provide the highest strength, appearance and corrosion resistance for the majority of uses. For some applications requiring special characteristics the use of Type 316 or some other analysis may be necessary and in recognition of this need, Type 316 now can be supplied promptly in most of the items listed on the following pages.

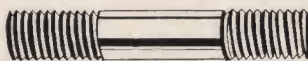
STAINLESS STEEL STUD BOLTS AND THREADED RODS

Threaded promptly in any alloy specified from Rods in warehouse stock. (See Rods Section for sizes available.)

Studs



Type "A"—Tap End



Type "B"—Double End



Type "C"—Continuous Threads

When ordering Studs, clearly specify Type (A, B or C), Diameter, Threads per Inch and Length.

Threaded Rods

When ordering Threaded Rods, clearly specify Diameter and Length of Rods, Threads per Inch and Length of Threading.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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AND
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HEXAGON HEAD STAINLESS STEEL MACHINE BOLTS

American Standard—With or Without Hexagon Nuts
Type 304—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	5/32"	3/16"	15/64"	9/32"	1/8"	25/64"	15/32"
PACKING	100 Per Box	50 Per Box				25 Per Box	
Lengths							
1 1/2"	*	*	..	..	..	..	..
3/4"	*	*	..	..	..	..	..
1"	*	*	*	*	*	*	*
1 1/4"	*	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/4"	..	..	..	..	..	..	..
2 1/2"	*	*	*	*	*	*	*
3"	*	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*	*
4"	*	*	*	*	*	*	*
4 1/2"	..	..	*	*	*	*	*
5"	*	*	*	*	*	*	*
6"	*	*	*	*	*	*	*

ROUND HEAD STAINLESS STEEL CARRIAGE BOLTS

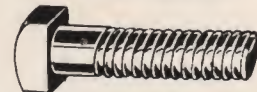
American Standard—With or Without Hexagon Nuts
Type 304—Square Neck—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	20	18	16	13
DIAMETER OF HEAD	9/16"	1 1/16"	1 3/16"	1 1/2"
HEIGHT OF HEAD	1/8"	5/32"	3/16"	1/4"
PACKING	100 per Box	50 per Box		
Lengths				
2"	*	*	*	*
2 1/2"	*	*	*	*
3"	*	*	*	*
3 1/2"	*	*	*	*
4"	*	*	*	*
5"	..	..	*	*
6"	..	..	*	*

SQUARE HEAD STAINLESS STEEL MACHINE BOLTS

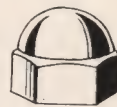
American Standard—With or Without Hexagon Nuts
Type 304—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	5/8"	3/4"	15/16"	1 1/8"
HEIGHT OF HEAD	1 1/64"	1 3/64"	1/4"	1 1/64"	2 1/64"	2 7/64"	1/2"
Lengths							
3/4"	*	*	*	..	..	*	..
1"	*	*	*	*	*	*	..
1 1/4"	*	*	*	*	*	*	*
1 1/2"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/2"	*	*	*	*	*	*	*
3"	*	*	*	*	*	*	*
3 1/2"	*	*	*	*	*	*	*
4"	*	*	*	*	*	*	*
4 1/2"	..	..	*	*	*	*	*
5"	..	..	*	*	*	*	*
5 1/2"	..	..	..	*	*	*	*
6"	..	..	..	*	*	*	*

HEXAGON STAINLESS STEEL CAP (ACORN) NUTS

Type 303—Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches	PACKING
10 (3/16")	24	3/8"	1 1/32"	100 per Box
1/4"	20	7/16"	3/8"	
5/16"	18	9/16"	7/16"	
3/8"	16	5/8"	1/2"	
1/2"	13	3/4"	9/16"	50 per Box
5/8"	11	15/16"	3/4"	

STAINLESS STEEL WING NUTS

Type 303—Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Wings)	HEIGHT OVERALL	PACKING
10 (3/16")	24	1 3/16"	3/8"	100 per Box
1/4"	20	1 1/16"	9/16"	
5/16"	18	1 3/16"	9/16"	
3/8"	16	1 1/2"	1 1/16"	
1/2"	13	1 7/8"	1 5/16"	50 per Box

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

HEXAGON STAINLESS STEEL BOLT NUTS

Semi-Finished—Type 303
National Coarse and
Fine Threads
Class 2 Fit



Bolt Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches		PACK- ING
			Full Nut	Jam Nut	
AMERICAN STANDARD REGULAR					
1/4"	20	7/16"	13/64"	9/64"	100 per Box
5/16"	18	9/16"	1/4"	11/64"	
3/8"	16	5/8"	5/16"	13/64"	
7/16"	14	3/4"	23/64"	15/64"	
1/2"	13	13/16"	27/64"	19/64"	
5/8"	11	1"	17/32"	23/64"	50
3/4"	10	1 1/8"	41/64"	27/64"	per Box
7/8"	9	1 1/16"	3/4"	31/64"	25
1"	8	1 1/2"	55/64"	35/64"	per Box
1 1/8"	7	1 11/16"	31/32"	..	Bulk
1 1/4"	7	1 7/8"	1 1/16"	..	

AMERICAN STANDARD HEAVY

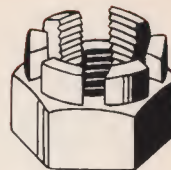
1/4"	20	1/2"	15/64"	..	100 per Box
5/16"	18	19/32"	13/64"	..	
3/8"	16	11/16"	23/64"	..	
1/2"	13	7/8"	31/64"	..	
5/8"	11	1 1/16"	39/64"	..	50
3/4"	10	1 1/4"	47/64"	..	per Box
7/8"	9	1 7/16"	55/64"	..	25
1"	8	1 5/8"	63/64"	..	per Box

AMERICAN STANDARD LIGHT (SAE)

1/4"	28	7/16"	7/32"	..	100 per Box
5/16"	24	1/2"	17/64"	..	
3/8"	24	9/16"	21/64"	..	
7/16"	20	5/8"	3/8"	..	
1/2"	20	3/4"	7/16"	..	
5/8"	18	15/16"	35/64"	..	50
3/4"	16	1 1/16"	21/32"	..	per Box
7/8"	14	1 1/4"	49/64"	..	25
1"	14	1 1/2"	7/8"	..	per Box

HEXAGON STAINLESS STEEL CASTELLATED NUTS

American Standard—Type 303
Class 2 Fit
Light Pattern



Bolt Size	Threads per Inch		WIDTH Inches (Across Flats)	THICK- NESS Inches	PACK- ING
	Coarse	Fine			
1/4"	20	28	7/16"	9/32"	100 per Box
5/16"	18	24	1/2"	21/64"	
3/8"	16	24	9/16"	13/32"	
7/16"	14	20	5/8"	29/64"	
1/2"	13	20	3/4"	9/16"	
5/8"	11	18	13/16"	23/32"	50
3/4"	10	16	1 1/16"	13/16"	per Box

Hexagon Slotted Nuts—1/4" to 1 1/2" incl., made to order promptly.

HEXAGON STAINLESS STEEL MACHINE SCREW NUTS

American Standard—Type 303
Class 2 Fit
In One Gross Boxes



Screw Size	Threads Per Inch	WIDTH Inches (Across Flats)	THICKNESS Inches
2	56	3/16"	1/16"
3	48	3/16"	1/16"
4	40	1/4"	3/32"
6	32	5/16"	7/64"
8	32	11/32"	1/8"
10	24	3/8"	1/8"
10	*32	3/8"	1/8"
12	24	7/16"	5/32"
1/4"	20	7/16"	3/16"

*Fine threads.

SPECIAL ITEMS

Available to Order

"U" BOLTS

EYE BOLTS

TAP BOLTS

HOOK BOLTS

TERMINAL SCREWS

EYE SCREWS

SPECIAL WASHERS

SPECIAL RIVETS

EXPANSION BOLTS AND SHIELDS

IDENTIFICATION TAGS AND CHECKS

PLAIN AND CORRUGATED GASKETS

ASBESTOS LINED GASKETS

LINK CHAIN

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

WELDING
AND
BRAZING

SPECIAL
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FASTENERS • SCREWS • NUTS • BOLTS • ETC.



FLAT STAINLESS STEEL WASHERS

For Screws, Bolts and Rods

Type 302



Screw Size	Bolt Size	OUTSIDE DIAMETER Inches	INSIDE DIAMETER Inches	THICKNESS Inches	APPROXIMATE NUMBER Per Pound	PACKING
No. 6	..	3/8"	.147	.031	1300	1000 per Box
No. 8	..	3/8"	.172	.031	1400	
No. 10	..	7/16"	.200	.037	580	
No. 12	..	1/2"	.227	.040	550	
1/4"	1/4"	1 1/16"	.260	.050	275	100 per Box
5/16"	5/16"	7/8"	.337	.062	220	
3/8"	3/8"	1"	.391	.062	110	
..	7/16"	1 1/8"	1/2"	.062	72	
..	1/2"	1 1/4"	9/16"	.078	31	
..	5/8"	1 1/2"	1 1/16"	.078	22	
..	3/4"	1 3/8"	1 3/16"	.109	13	
..	7/8"	2 1/4"	1 1/2"	.109	7.5	50
..	1"	2 1/2"	1 5/8"	.125	6.5	per Box

STAINLESS STEEL LOCK WASHERS

For Screws and Bolts

ASA and SAE Standards
Medium Section—Type 302



Size	SIZE OF SECTION Inches	APPROX. WEIGHT Per 1000	PACKING
No. 2	.035 x .020	.11 lb.	1000 per Box
No. 3	.040 x .025	.17 lb.	
No. 4	.040 x .025	.17 lb.	
No. 6	.047 x .031	.31 lb.	
No. 8	.055 x .040	.54 lb.	
No. 10	.062 x .047	.79 lb.	
No. 12	.070 x .056	1.19 lb.	
1/4"	.109 x .062	2.60 lbs.	
5/16"	.125 x .078	4.40 lbs.	500 per Box
3/8"	.141 x .094	7.00 lbs.	
7/16"	.156 x .109	10.20 lbs.	
1/2"	.171 x .125	14.40 lbs.	
5/8"	.203 x .156	25.90 lbs.	100 per Box
3/4"	.234 x .188	42.90 lbs.	
7/8"	.266 x .219	67.40 lbs.	
1"	.297 x .250	96.60 lbs.	

STAINLESS STEEL FINISHING WASHERS

Countersunk Style
Type 302

For Use with Flat and Oval Head Screws

IN SIZES OF

Nos. 6, 8, 10, 12 and 1/4"



SQUARE HEAD STAINLESS STEEL LAG SCREWS

(Also Termed Coach Screws and Lag Bolts)

American Standard—Type 304

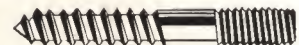


Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
WIDTH OF HEAD (Across Flats)	3/8"	1/2"	9/16"	3/4"	1 1/16"	1 1/8"
HEIGHT OF HEAD	1 1/4"	1 3/4"	1 1/4"	2 1/4"	2 3/4"	1 1/2"
PACKING	100 per Box		50 per Box		25 per Box	
Lengths						
2"	*	*	*	..	..	..
2 1/2"	*	*	*	*	..	..
3"	*	*	*	*	..	..
3 1/2"	..	*	*	*	*	*
4"	..	*	*	*	*	*
5"	..	*	*	*	*	*
6"	..	*	*	*	*	*

STAINLESS STEEL HANGER SCREWS

Type 304

With or Without Hexagon Nuts or Washers



Diameters: 1/4" to 3/4" incl.

Lengths: To suit your requirements

Made to order promptly

See Page 191 for Hexagon Nuts.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

STAINLESS STEEL MACHINE SCREWS

American Standard—Type 304—Class 2 Fit
In One Gross Boxes (Except 3/8" and 1/2" Dia., 1/2 Gross Boxes)



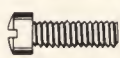
FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)



FILLISTER HEAD (P)



TRUSS HEAD (T)

Diameter	2	3	4	6	8	10	10	12	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	56	48	40	32	32	24	*32	24	20	18	16	13
DECIMAL SIZE	.086"	.099"	.112"	.138"	.164"	.190"	.190"	.216"	.250"	.312"	.375"	.500"
Lengths												
1/8"	RP	RP	R	..	..	..	..	..	..	..	..	..
3/16"	FRP	FRP	FR P	FR P	..	..	..	..	..	..	..	..
1/4"	FRP	FRP	FROP	FROPT	FROPT	FRO T	FR PT	..	..	..	..	..
5/16"	FRP	FR	FRO	FROP	FROP	FR P	FR T	..	..	..	..	..
3/8"	FRP	FR	FROP	FROPT	FROPT	FROPT	FROPT	FR	FROP	..	..	..
7/16"	R	R	FR	FRO	FRO	R	FR	..	R	..	..	..
1/2"	FRP	FR	FROP	FROPT	FROPT	FROPT	FROPT	FR	FROPT	FR	FR	..
5/8"	FR	FR	FR	FROPT	FROPT	FROPT	FROPT	FR	FROP	FR	..	..
3/4"	R	R	FR	FROPT	FROPT	FROPT	FROPT	R	FROPT	FRP	FRP	F
7/8"	..	..	R	FR P	FR P	FR P	FR P	FR	FR P	FR	FR	..
1"	..	..	FR	FROP	FROP	FROPT	FROPT	FR	FROPT	FRP	FRP	F
1 1/8"	..	..	..	R	R	R	R	..	..	..	..	..
1 1/4"	..	..	R	FROP	FROP	FROP	FROP	FR	FROPT	FRP	FR	F
1 1/2"	..	..	..	FR	FROP	FROP	FROP	FR	FROPT	FRP	FR	F
1 3/4"	..	..	..	R	FR	FR	FR	..	FR	FR	FR	F
2"	..	..	..	FR	FR	FR	FR	FR	FR	FR	FR	F

*Fine threads.

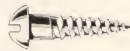
Phillips-Recessed Head Machine Screws and Wood Screws can also be furnished from mill depending upon quantity.

STAINLESS STEEL WOOD SCREWS

American Standard—Type 304—Class 2 Fit
In One Gross Boxes



FLAT HEAD (F)



ROUND HEAD (R)



OVAL HEAD (O)



TRUSS HEAD (T)

Diameter	4	5	6	7	8	9	10	12	14	16	18	20
DECIMAL SIZE	.112"	.125"	.138"	.151"	.164"	.177"	.190"	.216"	.242"	.268"	.294"	.320"
Lengths												
3/8"	F OT	F O	F O	..	..	..	..	..	..	..	..	..
1/2"	FROT	FRO	FROT	R	FROT	..	FROT	..	..	..	..	..
5/8"	FRO	FROT	FROT	F	FRO	..	FROT	..	..	..	..	..
3/4"	FROT	FRO	FROT	FRO	FROT	F	FROT	FRO	..	..	..	..
7/8"	..	F	F	..	F	..	F	..	..	..	..	..
1"	FRO	FRO	FROT	F O	FROT	FO	FROT	FRO	F O	..	..	..
1 1/4"	..	..	FROT	F	FROT	FO	FROT	FRO	FR	..	..	..
1 1/2"	..	..	FROT	F	FROT	FO	FROT	FRO	FR	FR	F	F
1 3/4"	..	..	..	..	F O	..	FR	FRO	FR	F	FR	F
2"	..	..	..	..	FROT	..	FRO	FRO	FRO	FR	F	F
2 1/4"	..	..	..	..	..	..	F	..	F	..	F	..
2 1/2"	..	..	..	..	..	..	F O	FRO	FR	FR	FR	F
3"	..	..	..	..	..	..	F	FR	FR	FR	FR	F
3 1/2"	..	..	..	..	..	..	..	F	FR	FR	FR	F

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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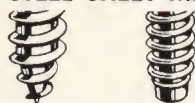
MISC.

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FASTENERS • SCREWS • NUTS • BOLTS • ETC.



STAINLESS STEEL SHEET METAL SCREWS



Type "A" and Type "Z"
Self Tapping
In One Gross Boxes



ROUND HEAD (R)



OVAL (Countersunk) HEAD (O)



TRUSS (Stove or Oven) HEAD (T)

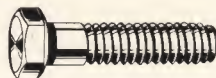


PAN (Binding) HEAD (P)

Size		4	6	7	8	10	12	14
DEC. EQUIV. "A"		.112"	.138"	.155"	.165"	.191"	.218"	.251"
TYPE "A"	1/4"	RP	R P	..	..	..	..	..
	3/8"	RP	R P	RP	R P	R P	..	..
	1/2"	RP	ROP	RP	ROP	R P	RP	RP
	5/8"	RP	R P	RP	ROP	ROP	RP	RP
	3/4"	RP	R P	RP	ROP	ROP	RP	RP
	7/8"	..	R P	RP	R P	R P	RP	RP
	1"	..	R P	RP	ROP	R P	RP	RP
	1 1/4"	..	..	..	..	R P	RP	RP
	1 1/2"	..	..	..	..	..	RP	RP
DEC. EQUIV. "Z"		.112"	.137"	.151"	.163"	.186"	.212"	.243"
TYPE "Z"	1/4"	ROT	ROT	..	..	..	..	..
	5/16"	R	RO	..	..	..	..	..
	3/8"	RO	ROT	..	ROT	RO	..	..
	1/2"	RO	RO	..	ROT	ROT	R	..
	5/8"	..	..	..	..	RO	R	RO
	3/4"	..	..	..	RO	R	R	R

Phillips-Recessed Head Sheet Metal Screws can also be furnished from mill depending upon quantity.

HEXAGON HEAD STAINLESS STEEL CAP SCREWS



American Standard—Type 304
Class 2 Fit

Diameter	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	14	13	11	10
WIDTH OF HEAD (Across Flats)	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
HEIGHT OF HEAD	3/16"	1 5/64"	9/32"	21/64"	3/8"	15/32"	9/16"
PACKING	100 per Box			50 per Box		25 per Box	
Lengths							
3/8"	*	*	..	..	..	..	..
1/2"	*	*	*	..	..	..	..
5/8"	*	*	*	..	..	..	..
3/4"	*	*	*	*	*	..	..
1"	*	*	*	*	*	*	..
1 1/4"	*	*	*	*	*	*	..
1 1/2"	*	*	*	*	*	*	*
1 3/4"	*	*	*	*	*	*	*
2"	*	*	*	*	*	*	*
2 1/2"	..	..	*	*	*	*	*
3"	..	..	*	*	*	*	*
3 1/2"	..	..	*	..	*	*	*
4"	..	..	*	..	*	*	*

SOCKET HEAD STAINLESS STEEL CAP SCREWS



Type 303—Class 2 Fit

Diameter	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	20	18	16	13
DIAMETER OF HEAD	3/8"	7/16"	9/16"	3/4"
HEIGHT OF HEAD	1/4"	5/16"	3/8"	1/2"
WIDTH SOCKET (Across Flats)	3/16"	7/32"	5/16"	3/8"
PACKING	100 per Box			50 per Box
Lengths				
3/8"	*	..	..	..
1/2"	*	*	*	..
5/8"	*	*	*	*
3/4"	*	*	*	*
1"	*	*	*	*
1 1/4"	*	*	*	*
1 1/2"	*	*	*	*
1 3/4"	..	*	*	*
2"	..	*	*	*

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

SQUARE HEAD STAINLESS STEEL SET SCREWS

American Standard—Type 303

Cup Point—Class 2 Fit



Diameter	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
Threads Per Inch	20	18	16	13	11	10
WIDTH OF HEAD (Across Flats)	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
HEIGHT OF HEAD	3/16"	15/64"	9/32"	3/8"	15/32"	9/16"
PACKING	100 per Box		50 per Box		25 per Box	
Lengths						
1/2"	*	*	*	..	..	..
3/4"	*	*	*	*	..	..
1"	*	*	*	*	*	..
1 1/4"	..	*	*	*	*	*
1 1/2"	..	..	*	*	*	*
1 3/4"	..	..	*	..	..	..
2"	..	..	*	*	*	*

Other style points, such as Round, Pivot, Dog, Flat Points, etc., produced to suit your requirements.

SOCKET HEAD STAINLESS STEEL SET SCREWS

Type 303—Cup Point

Class 2 Fit

In Boxes of 100



Diameter	6	8	10	1/4"	5/16"	3/8"	1/2"
Threads Per Inch	32	32	24	20	18	16	13
SOCKET WIDTH	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	1/4"
Lengths							
3/16"	*	*	*	..	..	..	..
1/4"	*	*	*	*	*	..	..
5/16"	*	*	*	*	*	*	..
3/8"	*	*	*	*	*	*	*
1/2"	..	*	*	*	*	*	*
3/4"	..	*	*	*	*	*	*

STAINLESS STEEL THUMB SCREWS



Prompt Shipment

DIAMETER	10	1/4"	5/16"	3/8"	1/2"
THREADS PER INCH	24	20	18	16	13
	*32				

In Lengths 1/2" up to 2" incl.

*Fine threads.

STAINLESS STEEL COTTER PINS

Type 303



DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
PACKING	1000 per Box					500 per Box	250 per Box	125 per Box
LENGTHS								
1/2"	*	*	*	..	..	..	..	..
3/4"	*	*	*	*	..	..	..	..
1"	*	*	*	*	*	..	..	..
1 1/4"	*	*	*	*	*	..	..	..
1 1/2"	*	*	*	*	*	..	..	..
1 3/4"	*	*	*	*	*	..	..	..
2"	*	*	*	*	*	*	*	*
2 1/4"	..	..	..	..	*	*	*	*
2 1/2"	..	..	*	*	*	*	*	*
3"	..	..	*	*	*	*	*	*
3 1/2"	..	..	..	..	*	*	*	*
4"	..	..	..	..	*	*	*	*
5"	..	..	..	..	..	..	*	*

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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WHITEHEAD WAREHOUSE ITEMS

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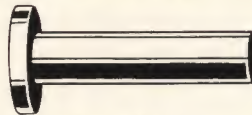


STAINLESS STEEL RIVETS

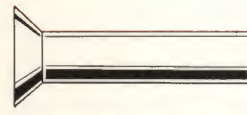
In One-Pound Boxes



ROUND HEAD (R)



FLAT HEAD (F)



90° COUNTERSUNK HEAD (C)

Type 304

DIAMETER	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
LENGTHS								
1/8"	RF							
	4500	..	..	..	..	..	..	..
3/16"	RF	RFC	RFC	R C				
	3600	1500	730	430	..	..	..	..
1/4"	RF	RFC	RFC	RFC	RF			
	2800	1300	650	380	240	..	..	..
5/16"	RF	RFC	RFC	RFC	RFC	R		
	2500	1100	570	330	215	93	..	..
3/8"	RF	RFC	RFC	RFC	RFC	RFC		
	2300	950	500	300	190	86	..	..
7/16"		R C	RFC		RFC	RFC	R	
	..	875	450	..	180	79	46	..
1/2"	R	RFC	RFC	RFC	RFC	RFC	RFC	R C
	1750	775	410	250	165	74	43	27
5/8"		RFC	RFC	RFC	RFC	RFC	RFC	RFC
	..	650	350	215	140	66	36	24
3/4"		RF	RFC	RF	RFC	RFC	RFC	RFC
	..	570	300	185	125	59	33	22
7/8"		R	RFC	R	RFC	RFC	R C	R
	..	500	270	165	110	53	31	20
1"		RFC	RFC	RFC	RFC	RFC	RFC	RFC
	..	450	240	150	100	48	29	19
1 1/8"			R C		R C	R C	R C	R C
	..	..	215	..	92	44	27	17
1 1/4"			RF	R	RFC	RFC	RFC	R C
	..	..	195	125	84	41	24	16
1 1/2"			R	R	RF	RFC	RFC	RFC
	..	..	130	105	72	36	21	14
1 3/4"			R			R	R	R
	..	..	110	..	..	32	19	13
2"					R	RF	R	RF
	..	..	..	..	53	30	17	12

Number of Pieces per Pound cover Round and Flat Head Type. For Countersunk Head sizes increase by approx. 25%.

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.



FASTENERS • SCREWS • NUTS • BOLTS • ETC.

STAINLESS STEEL FLAT HEAD TINNERS' RIVETS

In One-Pound Boxes
Type 304



Size	DIAM. Inches	LGTH. Inches	Size	DIAM. Inches	LGTH. Inches
8 oz.	.092	5/32"	2 1/2 lbs.	.148	9/32"
10 oz.	.095	1/64"	3 lbs.	.160	5/16"
12 oz.	.106	3/16"	3 1/2 lbs.	.165	11/32"
14 oz.	.109	3/16"	4 lbs.	.176	11/32"
1 lb.	.112	13/64"	5 lbs.	.186	3/8"
1 1/4 lb.	.120	7/32"	6 lbs.	.203	25/64"
1 1/2 lb.	.130	15/64"	8 lbs.	.225	7/16"
1 3/4 lb.	.134	1/4"	10 lbs.	.238	15/32"
2 lbs.	.145	1/4"	12 lbs.	.259	1/2"

STAINLESS STEEL COMMON WIRE NAILS

In 5-Pound Boxes and 100-Pound Kegs
Type 302



Penny Size	Length Inches	Gauge	DECIMAL DIAM. Inches	APPROX. NAILS Per Pound
2d	1"	No. 15	.072	840
3d	1 1/4"	No. 14	.083	555
4d	1 1/2"	No. 13	.095	300
5d	1 3/4"	No. 13	.095	265
6d	2"	No. 12	.109	176
7d	2 1/4"	No. 11	.120	154
8d	2 1/2"	No. 10	.134	96
10d	3"	No. 9	.148	66
12d	3 1/4"	No. 9	.148	59
16d	3 1/2"	No. 8	.165	46
20d	4"	No. 6	.203	29
30d	4 1/2"	No. 5	.220	22
40d	5"	No. 4	.238	18
50d	5 1/2"	No. 3	.259	14
60d	6"	No. 2	.284	11

STAINLESS STEEL TAPER PINS

Type 303

Tapered 1/4" per Foot

In Boxes of 100, Except 6, 7 and 8 x 1/4" and Longer, Boxes of 50

NUMBER	7/0	6/0	5/0	4/0	3/0	2/0	0	1	2	3	4	5	6	7	8
DIAMETER AT LARGE END	.063"	.078"	.094"	.109"	.125"	.141"	.156"	.172"	.193"	.219"	.250"	.289"	.341"	.409"	.492"
LENGTHS															
1/4"	*	*	*	..	..	..	..	..	..	..	..	..	..	..	..
5/16"	*	*	..	..	..	..	..	..	..	..	..	..	..	..	..
3/8"	*	*	*	*	*	..	..	..	..	..	..	..	..	..	..
7/16"	*	*	*	*	..	..	..	..	..	..	..	..	..	..	..
1/2"	*	*	*	*	*	*	*	..	..	..	..	..	..	..	..
9/16"	*	*	*	*	*	..	*	..	..	..	..	..	..	..	..
5/8"	*	*	*	*	*	*	*	*	..	..	..	..	..	..	..
3/4"	*	*	*	*	*	*	*	*	*	*	..	..	..	..	..
1"	..	*	*	*	*	*	*	*	*	*	*	*	..	..	..
1 1/4"	..	..	..	*	*	*	*	*	*	*	*	*	*	*	..
1 1/2"	..	..	..	..	*	*	*	*	*	*	*	*	*	*	..
1 3/4"	..	..	..	..	..	*	*	*	*	*	*	*	..	..	..
2"	..	..	..	..	..	..	*	*	*	*	*	*	*	*	*
2 1/4"	..	..	..	..	..	..	..	*	*	*	*	*	*	*	..
2 1/2"	..	..	..	..	..	..	..	..	*	*	*	*	*	*	*
2 3/4"	..	..	..	..	..	..	..	..	..	..	*	*	*	*	..
3"	..	..	..	..	..	..	*	*	*	*	*	*	*	*	*
3 1/4"	..	..	..	..	..	..	..	..	..	..	*	*	*	*	..
3 1/2"	..	..	..	..	..	..	..	..	*	..	..	..	*	*	*
4"	..	..	..	..	..	..	..	..	..	..	*	*	*	*	*
4 1/4"	..	..	..	..	..	..	..	..	..	..	..	..	*	*	*
4 1/2"	..	..	..	..	..	..	..	..	..	..	..	..	..	*	*
5"	..	..	..	..	..	..	..	..	..	..	..	..	*	*	*
5 1/2"	..	..	..	..	..	..	..	..	..	..	..	..	..	*	*
6"	..	..	..	..	..	..	..	..	..	..	..	..	..	*	*

Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

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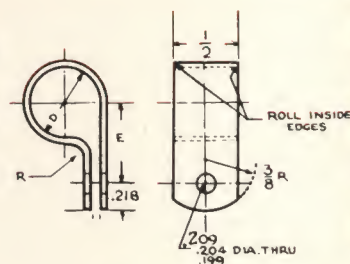
FASTENERS • SCREWS • NUTS • BOLTS • ETC.



ETHYL CELLULOSE PLASTIC CLIPS

Special Formulation—Loop Type Support—C.P.C. 742

These clamps have proved their merit in innumerable wiring and tube applications. They permit ease and speed of assembly without sacrifice of tensile and impact strength; non-corrosive, abrasion resistant, rolled edges, they greatly minimize the danger of short circuits. Virtually self-locking, they do not loosen from vibration.



SPECIFICATIONS

DASH NO.	SIZE Inches	"D" Inches	"E" Inches	MATERIAL THICKNESS Inches	"R"
2	1/8"	.125	0.328	.062	From Dash No. 2 through Dash No. 8 1/2" rad.
3	3/16"	.188	0.391	.062	
4	1/4"	.250	0.422	.062	
5	5/16"	.313	0.453	.062	
6	3/8"	.375	0.484	.062	
7	7/16"	.438	0.531	.062	
8	1/2"	.500	0.562	.062	
9	9/16"	.563	0.605	.062	From Dash No. 9 through Dash No. 20 1/16" rad.
9 1/2	1 1/32"	.594	0.608	.062	
10	5/8"	.625	0.611	.062	
11	11/16"	.688	0.666	.062	
12	3/4"	.750	0.766	.062	
14	7/8"	.875	0.812	.062	
16	1"	1.000	0.906	.062	
18	1 1/8"	1.125	0.969	.062	
19	1 3/16"	1.188	1.025	.062	
20	1 1/4"	1.250	1.156	.062	

TV Television Clips for 300 OHM Twin Lead.

SARAN PLASTIC CLAMPS—(C.P.C. 1949) available in the same type and sizes as shown in table above.

PARKER BRASS TUBE CLIPS



PART No.	TUBE OUTSIDE DIAMETER Inches	PART No.	TUBE OUTSIDE DIAMETER Inches	PART No.	TUBE OUTSIDE DIAMETER Inches
3121-1-3	3/16"	3121-3-3	3/16"	3121-4-3	3/16"
3121-1-4	1/4"	3121-3-4	1/4"	3121-4-4	1/4"
3121-1-5	5/16"	3121-3-5	5/16"	3121-4-5	5/16"
3121-1-6	3/8"	3121-3-6	3/8"	3121-4-6	3/8"
3121-1-8	1/2"	3121-3-8	1/2"	3121-4-8	1/2"
3121-1-10	5/8"	3121-3-10	5/8"	3121-4-10	5/8"
3121-1-12	3/4"	3121-3-12	3/4"	3121-4-12	3/4"

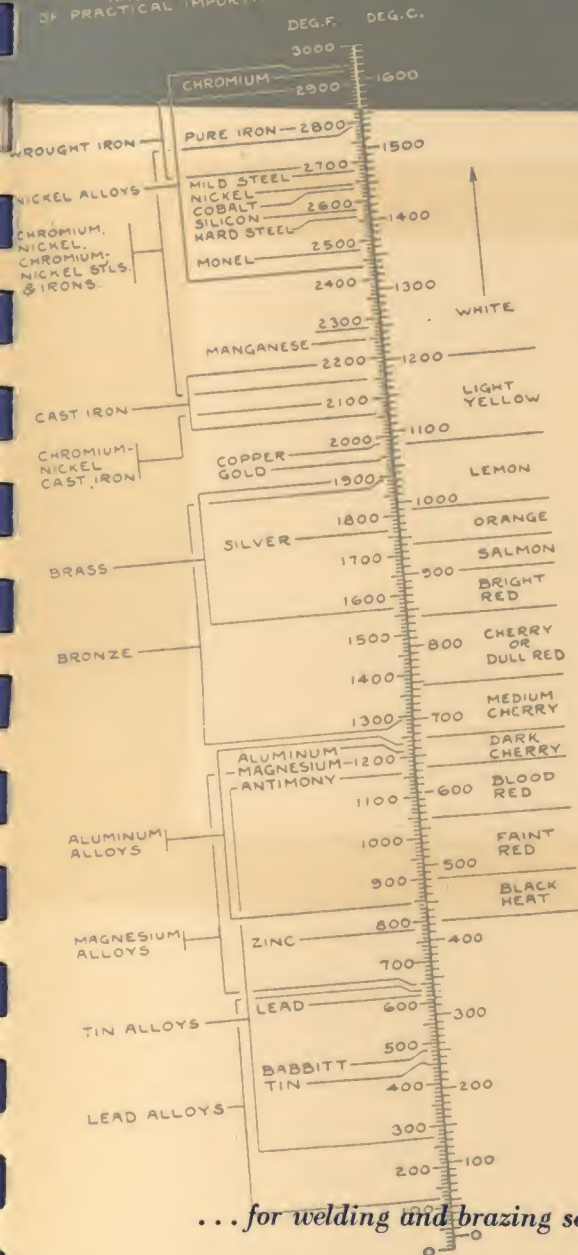
Corrosion resistant fasteners in sizes, types and alloys not listed may be made to order, depending upon quantity.

Welding *and*

COLOR SCALE.

Brazing *Section*

MELTING POINTS OF METALS AND ALLOYS OF PRACTICAL IMPORTANCE.



electrodes
welding wires
fluxes
silver solders



...for welding and brazing section index, see next page



Call **WHITEHEAD**

First!

See inside covers for addresses and phone numbers.

WELDING AND BRAZING

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ALUMINUM WELDING, BRAZING AND SOLDERING MATERIALS

The proper choice of filler material for gas welding is important, particularly when joining alloys which have comparatively large amounts of alloying constituent. Commercially pure aluminum (Alcoa 2S) and metal of higher purity are generally welded with filler metal of the same purity as the parent material. For Alcoa 3S the use of Alcoa 2S wire is generally best. When welding Alcoa 52S, 53S, and 61S alloys, a filler rod containing approximately 95 per cent aluminum and 5 per cent silicon is generally used. This rod (Alcoa 43S) has a substantially lower melting point than pure aluminum, and permits the dissipation of some of the stress set up by solidification shrinkage and thermal contraction which occurs in the weld zone as it cools. Cracks in the weld and in the transition zone of parts that are welded in jigs can be minimized by using this rod.

For detailed welding information, please consult our office.

ALUMINUM BRAZING INFORMATION

Material being brazed	Filler material	Form	Use
2S and 3S	No. 718 Brazing Wire 43S	Wire and Strip Wire	General use Limited use—torch brazing only
4S 52S	No. 718 Brazing Wire	Wire and Strip	Limited use—short joints—torch brazing only
53S, 61S or 63S	No. 718 Brazing Wire	Wire and Strip	General use

No. 718 Brazing Wire is used for torch brazing, Alcoa Alloys—2S, 3S, 52S, 53S, and 61S.

Alcoa No. 33 Brazing Flux and Alcoa No. 718 Brazing Wire are required for satisfactory results. See page 201.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

ELECTRODE SIZE AND MACHINE SETTING FOR METAL- AND CARBON-ARC WELDING OF ALUMINUM

Metal Thickness, Inch	Electrode Diameter, Inch	Approximate Current, Amperes	Number of Passes		Electrode Consumption, Pounds per 100 Feet			Electrodes per Pound
			Butt	Lap and Fillet	Butt	Lap	Fillet	
0.081	1/8"	60	1	1	4.7	5.3	6.3	32
0.101	1/8"	70	1	1	5.0	5.7	6.3	32
0.125	1/8"	80	1	1	5.7	6.25	6.3	32
0.156	1/8"	100	1	1	6.3	6.5	6.5	32
0.187	3/32"	125	1	1	8.7	9.0	9.0	23
0.250	3/16"	160	1	1	12.0	12.0	12.0	17
0.375	3/16" for laps and fillets 1/4" for butts	200	2	3	25.0	29.0	35.0	17
0.500	3/16" for laps and fillets 1/4" for butts	300	3	3	35.0	35.0	35.0	17

DATA FOR TUNGSTEN-ARC WELDING OF ALUMINUM Alternating Current—Argon Gas

Thickness, Inch	Filler Wire Diameter, Inch	No. Passes	Current, Amperes	Tungsten Diameter, Inch	Argon Volume Cu. Ft./Hr. ¹	Cup Opening Diameter, Sixteenths
0.051	3/32"	1	70	1/16"	12	6-7
0.064	1/8"	1	80	3/32"	14	7
0.081	1/8"	1	90	3/32"	14	7
0.101	1/8"	1	120	1/8"	15	7-8
0.125	5/32"	1	140	1/8"	15	7-8
0.187	3/16"	2	190	3/32"	15	7-8
0.250	3/16"	2	220	3/16"	20	8
0.375	1/4"	2	300	1/4"	24	8-10
0.500 ⁽²⁾	1/4"	3-4	400	1/4"	24	10
1.000 ⁽²⁾	3/8"	6-10	500	3/8"	30	10-12
2.000 ⁽²⁾	3/8"	14-18	550	3/8"	40	10-12

¹Multiply reading on oxygen flowmeter by 1.8 for approximate conversion from liters per minute to cubic feet per hour of argon gas.

²Preheat to 400° F.

APPROXIMATE CONDITIONS FOR ATOMIC-HYDROGEN ARC WELDING

Thickness, Inch	Electrode Size	Current, Amperes	Filler Rod Diameter, Inch
0.062 to 0.075	1/16"	20-25	3/32"
1/8" to 3/32"	1/16"	25-35	1/8"
3/16" to 1/4"	1/16" or 1/8"	35-40	1/8" or 3/32"
3/8" to 1/2" ⁽¹⁾	1/8"	40-50	3/16"
5/8" to 3/4" ⁽¹⁾	1/8"	60-80	3/16" or 1/4"

¹To obtain maximum welding speeds, sections 3/8 inch or more in thickness should be preheated to a temperature of 600 to 700° F., and maintained in this temperature range during welding. Recommended methods of heating are furnace heating or heating with city gas and compressed air flames. If open flame is used, local heating to the 600 to 700° F. temperature range is usually adequate, and minimizes the extent of the annealed area when welding materials in the strain-hardened condition. Sections lighter than 3/8 inch in thickness are rapidly heated by the welding arc, and preheating is not ordinarily advantageous.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.



WELDING • BRAZING AND SOLDERING MATERIALS

ALUMINUM WELDING AND BRAZING MATERIALS

GAS WELDING

2S SOFT ALUMINUM WELDING WIRE

Uncoated
(Coiled)

Diameter.....	.051	.064	.081	.091	.102	.125	.187	.250
Weight (lbs.) per 1000 Feet..	2.30	3.80	6.00	7.60	9.50	14.30	32.30	57.70

36" Straight Lengths in Diameters of (Inches)

$\frac{1}{8}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

For Acetylene Welding 2S and 3S Aluminum Alloys, use Alcoa No. 22 Flux.

43S-H18 (5% SILICON) ALUMINUM WELDING WIRE

Caustic Dipped
(Coiled)

Size.....	$\frac{1}{16}$ "	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	* $\frac{1}{4}$ "
Weight (lbs.) per 1000 Feet..	3.80	8.10	14.00	23.00	32.30	57.50

*43S- $\frac{3}{4}$ H

36" Straight Lengths in Diameters of (Inches)

$\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

For Acetylene Welding and Tungsten Arc Welding all commercial Aluminum Alloys where fluidity is desirable.

ELECTRIC WELDING

43S FLUX COATED ALUMINUM ELECTRIC ARC WELDING ELECTRODES

	APPROXIMATE ELECTRODES Per Pound		APPROXIMATE ELECTRODES Per Pound
$\frac{1}{8}$ " dia. x 14" long	32	$\frac{3}{16}$ " dia. x 14" long	17
$\frac{5}{32}$ " dia. x 14" long	23	$\frac{1}{4}$ " dia. x 14" long	11

In 2-lb. Packages

BRAZING

No. 718 ALUMINUM BRAZING WIRE IN COILS

$\frac{1}{16}$ " diameter $\frac{3}{32}$ " diameter $\frac{1}{8}$ " diameter $\frac{3}{16}$ " diameter

No. 718 ALUMINUM BRAZING STRIP IN COILS

.020 thick x 2" wide

SOLDERING

No. XA-803 ALUMINUM SOLDER

$\frac{1}{4}$ " dia. (14" lengths) $\frac{1}{8}$ " dia., 1-lb. Spools

FLUXES

No. 22 ALUMINUM GAS WELDING FLUX

In 1-lb. Jars In 5-lb. Jars (Color, Pink)

No. 33 ALUMINUM BRAZING FLUX

In 1-lb. Jars (Color, Light Green)

No. 62 ALUMINUM SOLDER FLUX

In 1-lb. Cans

Write for "Welding and Brazing Alcoa Aluminum," 134 pages of technical and semi-technical information about all phases of welding and brazing aluminum alloys.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

ANACONDA Welding Rods

Name of Rod	Approximate Composition Per Cent	Approximate Melting Point —Degrees		Suggested Welding Method and Use
		Cent.	Fahr.	
Anaconda Copper 372 (Patent No. 2,220,464)	98.85 Copper	1075	1967	Oxy-acetylene and inert-gas-shielded arc welding of copper.
Deoxidized Copper 939	99.9 Copper, deoxidizer present	1083	1981	Oxy-acetylene welding of copper.
Silver Bearing Copper 110	99 Copper, 1 Silver	1078	1972	Oxy-acetylene welding of copper.
Silicon Copper 943	99.75 Copper, .25 Silicon	1083	1981	Oxy-acetylene welding of copper, copper to steel.
Tobin Bronze 481	59 Copper, .50 Tin, remainder Zinc	885	1625	Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys.
Economy Bronze	Copper, Zinc, Tin	885	1625	Oxy-acetylene welding of steel and cast iron, etc.
Anaconda 997 (Low Fuming)	Copper, Zinc, Tin, Iron, Manganese, Silicon	870	1598	Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys. Bearing surfaces.
Manganese Bronze 984	Copper, Zinc, Tin, Iron, Manganese	870	1598	Oxy-acetylene welding of steel, cast iron, copper and its alloys, nickel and its alloys.
Nickel Silver 828	46.50 Copper, 43.38 Zinc, 10.00 Nickel, .10 Silicon, .02 Phosphorus	920	1690	Oxy-acetylene welding of cast iron and steel to obtain color match; nickel alloys; bearing surfaces.
Super-Nickel 826	70 Copper, 30 Nickel	1225	2237	Oxy-acetylene welding of Cupro-Nickel and steel.
Everdur 1010	96 Copper, 3 Silicon, 1 Manganese	1019	1866	Oxy-acetylene, carbon arc and inert-gas-shielded arc welding of Everdur, copper and copper alloys. Special applications to steel.
Phosphor Bronze 903 Grade A	95.75 Copper, 4.00 Tin, .25 Phosphorus	1050	1922	Carbon arc welding of phosphor bronze and copper. Special applications to steel.
Phosphor Bronze 310 Grade D	89.2 Copper, 10.5 Tin, .3 Phosphorus	1000	1832	Carbon arc welding of phosphor bronze, copper and copper alloys. Bearing surfaces on steel.

The items shown in the above table, which are not listed as stock items on the opposite page, are available promptly from the mill.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.



COPPER ALLOY WELDING AND BRAZING MATERIALS

All in 36" Lengths—10-Lb. Packages

ANACONDA TOBIN BRONZE 481 WELDING RODS

Diameters: $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

ANACONDA 997 (LOW FUMING) WELDING RODS

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ " $\frac{5}{16}$ "

ANACONDA SILICON COPPER 943 WELDING RODS

Diameters: $\frac{1}{8}$ " $\frac{3}{16}$ "

ANACONDA PHOSPHOR BRONZE B10—GRADE D WELDING RODS

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

ANACONDA EVERDUR 1010 WELDING RODS

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

ANACONDA NICKEL SILVER 828 WELDING RODS

Diameters: $\frac{1}{8}$ " $\frac{5}{32}$ "

INCO "137" (70-30) CUPRO NICKEL WELDING ELECTRODES D.C.

5-lb. Packages

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ "

HANDY AND HARMAN PHOSPHOR COPPER BRAZING ALLOY

for economical brazing of copper and copper alloys

Coils

$\frac{3}{32}$ " dia. $\frac{1}{16}$ " dia.

Square Rods (36" lengths)

$\frac{1}{4}$ " sq. $\frac{3}{16}$ " sq. $\frac{1}{8}$ " sq.

FLUX

Inco No. 1 Gas Welding and Brazing Flux for Copper and Copper Alloys

1-lb. Cans

STAINLESS STEEL WELDING ELECTRODES AND WIRE

14" Lengths—25-lb. Packages

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

Available promptly for all types of Stainless Steels. Lime and A.C.-D.C. type coatings.

Bare wire available in straight lengths and coils.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

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WHITEHEAD WAREHOUSE ITEMS

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INCO WELDING RODS

WELDING METHOD	NAME OF ROD	USE
MONEL		
Oxy-Acetylene	"40" Monel Gas Welding Wire	For welding Monel* using INCO "3" Gas Welding and Brazing Flux
Oxy-Acetylene	"43" Monel Gas Welding Wire	For welding heavy sections of Monel for acid pickling service—no flux required
Metal-Arc	"130X" Monel Welding Electrode D.C.	For welding Monel
Metal-Arc	"140" Monel Welding Electrode D.C.	For welding Monel to steel and stainless steel; nickel to steel; and overlay of Monel on steel
Submerged Melt	"50" Monel Wire	For welding Monel
Inert Gas Metal-Arc	"60" Monel Wire	For welding Monel

NICKEL

Oxy-Acetylene	"41" Nickel Gas Welding Wire	For welding of pure Nickel—no flux required
Metal-Arc	"131" Nickel Welding Electrode D.C.	For welding pure Nickel or Low Carbon Nickel; and Monel or Nickel to steel
Submerged Melt	"51" Nickel Wire	For welding pure Nickel
Inert Gas Metal-Arc	"61" Nickel Wire	For welding pure Nickel

INCONEL

Oxy-Acetylene	"42" Inconel Gas Welding Wire	For welding Inconel* using INCO "2" Gas Welding Flux
Metal-Arc	"132" Inconel Welding Electrode A.C.-D.C.	For welding Inconel; and Inconel to steel
Submerged Melt	"52" Inconel Wire	For welding Inconel
Inert Gas Metal-Arc	"62" Inconel Wire	For welding Inconel

"K" MONEL

Oxy-Acetylene	"44" "K" Monel Gas Welding Wire	For welding "K"* Monel, using 2 parts INCO "2" Gas Welding Flux and 1 part Lithium Fluoride
Metal-Arc	"134" "K" Monel Welding Electrode D.C.	For welding "K" Monel
Inert Gas Metal-Arc	"64" "K" Monel Wire	For welding "K" Monel

NICKEL-CLAD STEEL

Metal-Arc	"131" Nickel Welding Electrode D.C.	For welding Nickel side only
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LOW CARBON NICKEL-CLAD STEEL

Metal-Arc	"131" Nickel Welding Electrode D.C.	For welding Low Carbon* Nickel side only
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MONEL-CLAD STEEL

Metal-Arc	"140" Monel Welding Electrode D.C.	For welding Monel side only
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INCONEL-CLAD STEEL

Metal-Arc	"133" 80/20 Nickel-Chromium Welding Electrode A.C.-D.C.	For welding Inconel side only; and solid Inconel to steel
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CAST IRON WELDING

Metal-Arc	NI-ROD* Electrode A.C.-D.C.	For machinable welds in cast iron
Metal-Arc	NI-ROD 55* Electrode A.C.-D.C.	For heavy section, high phos. iron castings
Metal-Arc	"101" Welding Electrode A.C.-D.C.	For welding Ni-Resist*

FLUXES

INCO "1" Gas Welding and Brazing Flux	For the welding and brazing of copper alloys.
INCO "2" Gas Welding Flux	For the welding of all stainless steels, rustless irons, Inconel and other chromium-containing alloys.
INCO "3" Gas Welding Flux	For the welding of Monel and other Nickel-copper alloys.

*Reg. U. S. Pat. Off., The International Nickel Company, Inc.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.



NICKEL ALLOY WELDING MATERIALS

GAS WELDING

All in 36" Lengths, 5- and 10-lb. Packages

"40" MONEL GAS WELDING WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ "

"41" NICKEL GAS WELDING WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ "

"42" INCONEL GAS WELDING WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ "

"43" MONEL GAS WELDING WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ "

"44" "K" MONEL GAS WELDING WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ "

FLUXES

INCO "2" GAS WELDING FLUX FOR INCONEL

In 1-Lb. Cans

INCO "3" GAS WELDING FLUX FOR MONEL

In 1-Lb. Cans

SUBMERGED ARC WELDING WIRE

In Coils of 20 to 25 lbs. and 100 to 170 lbs.

"50" MONEL WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

"51" NICKEL WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

"52" INCONEL WIRE

Diameters: $\frac{1}{16}$ " $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

INERT GAS METAL-ARC WELDING WIRE

All in 36" Lengths, 5- and 10-lb. Containers

"60" MONEL WIRE

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ "

"61" NICKEL WIRE

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ "

"62" INCONEL WIRE

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ "

"64" "K" MONEL WIRE

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ "

ELECTRIC WELDING

"130X" MONEL WELDING ELECTRODES

Direct Current, Reversed Polarity

Diameters:	.075"	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "	$\frac{1}{4}$ "
Lengths:	12"	12"	14"	14"	14"	14"

"131" NICKEL WELDING ELECTRODES

Direct Current, Reversed Polarity

Diameters:	.075"	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "
Lengths:	12"	12"	14"	14"	14"

"132" INCONEL WELDING ELECTRODES

Either Alternating or Direct Current, Reversed Polarity

Diameters:	.075"	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "
Lengths:	12"	12"	14"	14"	14"

"133" 80-20 NICKEL-CHROMIUM WELDING ELECTRODES

Either Alternating or Direct Current, Reversed Polarity

Diameters: $\frac{3}{32}$ " $\frac{1}{8}$ " $\frac{5}{32}$ "

SEE OPPOSITE PAGE FOR USES



"134" "K" MONEL WELDING ELECTRODES

Direct Current, Reversed Polarity

Diameters:	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "
Lengths:	12"	14"	14"

"140" MONEL WELDING ELECTRODES

Direct Current, Reversed Polarity

Diameters:	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "
Lengths:	12"	14"	14"	14"

CAST IRON WELDING

NI-ROD & NI-ROD 55* WELDING ELECTRODES

Either Alternating or Direct Current, Reversed Polarity

Diameters:	$\frac{3}{32}$ "	$\frac{1}{8}$ "	$\frac{5}{32}$ "	$\frac{3}{16}$ "
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*Ni-Rod 55—Especially suited for the welding of high phosphor cast iron.

Welds made with Ni-Rod are machinable, non-porous and have high tensile strength.

Among Ni-Rod's outstanding advantages are its ex-

*Reg. U. S. Pat. Off., The International Nickel Company, Inc.

ceptionally stable arc, smooth bead contour, easy slag removal and reduced need for special treatment of the casting before and after welding.

"101" WELDING ELECTRODES

Either Alternating or Direct Current

In 14" Lengths

Diameters:	$\frac{1}{8}$ "	$\frac{5}{32}$ "
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For Welding of Ni-Resist Castings

SOFT SOLDERS

BAR SOLDER

(Tin and Lead)

In 100- and 250-Pound Cases or Less

ABOUT 1½-POUND BARS

Whitehead Best	50% Tin	50% Lead
Whitehead Warranted	48% Tin	52% Lead
Whitehead Monogram	46% Tin	54% Lead
Whitehead Wiping	40% Tin	60% Lead

ABOUT ¼-POUND BARS

Whitehead Boston Bars	50% Tin	50% Lead
Whitehead Capping Bars	50% Tin	50% Lead

HALF AND HALF WIRE SOLDERS

On 25- or 50-Pound Spools

Size: $\frac{1}{8}$ " Diameter

Mixtures	50% Tin—50% Lead
	48% Tin—52% Lead
	40% Tin—60% Lead

TRI-FLUX No. 3

For Steel, Iron, etc.—all metals except Stainless
1-Gallon Glass Jugs

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

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FEDERATED CASTOMATIC BAR SOLDER

1½-Pound Bars

A pressure cast bar of uniform fine-grained composition, free from inside voids. Available in all commercial mixtures.

AUTOMOBILE BODY SOLDER

Special Analysis for Auto Body Work

½-Pound Bars

SOFT SOLDER FLUX

Triple Duty Soldering Flux

Cleans—Removes Rust—Fluxes

SOLDERING COPPERS

Pointed and Flat Bottom Pattern

(Other patterns available promptly)

1, 1½, 2, 3, 4, 5, 6, 8, 10 and 12 Pounds per Pair

TRI-FLUX No. 5

For Soldering Stainless Steel and Monel
1-Gallon Glass Jugs



WELDING • BRAZING AND SOLDERING MATERIALS

AMSCO* Welding Electrodes and Rods For HARD SURFACING AND RECLAMATION

14" lengths except where otherwise specified

NICKEL-MANGANESE STEEL WELDING ELECTRODES

Diameters (in 18" lengths): $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 50 lbs.

For strength welding and building up Manganese steel castings and ordinary ferrous parts.

Weld Deposit: Brinell.....200
Work hardens to.....450-500

MO-MANG WELDING ELECTRODES

Diameters (in 18" lengths): $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 50 lbs.

Resistance to impact wear and abrasion (for build-up welding).

Weld Deposit: Brinell.....200
Work hardens to.....450-500

No. 459 WELDING RODS AND ELECTRODES

Diameters: $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ " $\frac{5}{16}$ " $\frac{3}{8}$ "
Package 10 lbs.

For severe abrasion and moderate impact.

Weld Deposit: Brinell.....500-600

No. 217 WELDING RODS AND ELECTRODES

Diameters: $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ " $\frac{5}{16}$ "
Package 10 lbs.

For severe abrasion and moderate shock.

Weld Deposit: Brinell.....600-700

CHROMEFACE WELDING RODS AND ELECTRODES

Diameters: $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 10 lbs.

Primarily for maintenance of Farm, Agricultural and Industrial equipment.

Weld Deposit: Brinell.....500-600

NI-HARD WELDING RODS AND ELECTRODES

Diameters: $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 10 lbs.

For handling of abrasive materials with low impact resistance.

Weld Deposit: Brinell.....500-600

ECONOMY HARDFACE WELDING RODS AND ELECTRODES

Diameters: $\frac{1}{8}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 10 lbs.

An air hardening weld to resist severe impact as well as abrasion.

Weld Deposit: Brinell.....450-550

SELF HARDENING WELDING RODS AND ELECTRODES

(Length of gas welding rod 28", others 14")

Diameters: $\frac{1}{4}$ " $\frac{3}{16}$ " $\frac{5}{32}$ " $\frac{1}{8}$ "
Package 50 lbs.

An air hardening moderate cost weld to resist severe impact and abrasion.

Weld Deposit: Brinell.....450-550

RESISTWEAR COATED ELECTRODES

Diameters: $\frac{1}{4}$ " $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 50 lbs.

A low-cost electrode for abrasive applications with severe impact resistance.

Weld Deposit: Brinell.....400-500

No. 1 WELDING RODS AND ELECTRODES

Diameters: $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 10 lbs.

For corrosion resistance at low and elevated temperatures with low impact.

Weld Deposit: Brinell.....500-540

No. 6 WELDING RODS AND ELECTRODES

Diameters: $\frac{5}{32}$ " $\frac{3}{16}$ " $\frac{1}{4}$ "
Package 10 lbs.

For corrosion resistance at low and elevated temperatures with moderate impact.

Weld Deposit: Brinell.....420-450

TUBE TUNGSTITE

Diameters: $\frac{1}{4}$ " $\frac{3}{16}$ " $\frac{1}{8}$ "
Package 5 lbs.

For extreme wear-resistant surfaces. The ultimate in abrasion resistance.

*AMSCO—Division of American Brake Shoe Company.

Tungsten carbide rods and inserts, dipper tooth repointer bars, nickel manganese steel plate and bars, and grouser bars and other products of American Manganese Steel Division of American Brake Shoe Company available promptly from mill.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.



Handy and Harman SILVER BRAZING AND SOLDERING ALLOYS

Three outstanding features are responsible for the efficient job Easy-Flo and Sil-Fos are doing for industry—(1) Low working temperatures, (2) exceptional fluidity and penetration, (3) the small amount of alloy required.

Low working temperatures—1145° F. for Easy-Flo and 1300° F. for Sil-Fos—make it easy to raise work rapidly to brazing heat. This results in faster production, saves time and lowers heating cost. Low temperatures also safeguard the physical properties of metals which high heat might damage or destroy.

The exceptional fluidity of Easy-Flo and Sil-Fos gives them the ability to penetrate into a joint instantly. They rapidly spread to every corner and diffuse into metal surfaces. Joints are as strong as solid metal, gas-tight and unaffected by shock, vibration and temperature changes.

The amount of low temperature silver brazing alloy needed to make a joint is far less than the amount of alloy required by high temperature brazing or welding. This is because thin films, not fillets, of Easy-Flo or Sil-Fos make the strongest and most ductile joints. Because they flow so freely, you use no more than you actually need. The alloy penetrates into the joint and little or none is left outside. Finishing costs are reduced to a minimum and often eliminated entirely.

Easy-Flo and Sil-Fos joints give high electrical and thermal conductivity. This is due to their silver content, the thin films that make joints and their diffusion into metal surfaces. Tests show that lap joints offer less electrical resistance and butt joints slightly more than the metals joined.

The high strength of Easy-Flo and Sil-Fos joints often makes it possible to reduce the area of lap required for high strength, resulting in important material savings. The strength, reliability, and speed provided by these alloys make them particularly suitable for production work. Ease of application makes them appropriate for maintenance and repair.

EASY-FLO

This is the original EASY-FLO Silver Brazing Alloy containing 50% silver. It has a melting point of 1160° F. and flows freely at 1175° F. EASY-FLO conforms to standard specifications where it is generally known as grade 4. Joins all ferrous and non-ferrous metals which melt at temperatures above its flow point and is particularly effective in joining dissimilar metals.

EASY-FLO 3

begins to melt at 1195° F. and flows at 1270° F. Widely used for brazing carbide tips to tool shanks, and because of its long melting range is recommended for joining ferrous and non-ferrous metals where filleting is required.

EASY-FLO 45

A 45% silver brazing alloy of the Easy-Flo type which starts to melt at 1120° F. and flows freely at 1145° F. This is the lowest-flowing temperature of any brazing alloy on the market capable of making high strength joints. EASY-FLO 45 is widely employed throughout industry for joining ferrous, non-ferrous and dissimilar metals.

Literature and technical assistance on Welding, Brazing and Soldering problems available from all Whitehead offices.

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For Answers to Metal Problems

CALL WHITEHEAD FIRST

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EASY-FLO 35

A 35% silver brazing alloy for real economy work. Particularly effective for torch brazing. Has a wide melting range 1115° F. to 1295° F.

SIL-FOS

A low silver content alloy (15%) for brazing non-ferrous metals only. SIL-FOS starts to melt at 1185° F. and is completely liquid and free flowing at 1300° F. Makes joints between copper, brass and bronze that are as strong or stronger than the metals joined. On clean copper-to-copper joints no flux is required.

Sil-Fos 5, a new economical grade of Sil-Fos containing 5% Silver with a slightly higher melting point than the regular grade (not available in sheet or strip form).

Other Handy and Harman specialized brazing alloys are available for mill shipment to accommodate specific requirements for corrosion resistance, higher temperature range, and color match.

HANDY FLUX

Handy Flux was developed many years ago specifically for low temperature silver alloy brazing. At 1100° F. it is a thin, active fluid which dissolves refractory oxides thoroughly, including chrome oxide. Always use it with low temperature silver brazing alloys.

Containers: 1/2 lb., 1 lb., 5 lb., 30 lb.

SIL-FOS

STANDARD STOCK SIZES

	APPROX. LENGTH Per Pound (Inches)		APPROX. LENGTH Per Pound (Inches)
1/8" square x 36"	210	3/32" Wire (Coils)	475
.050" x 1/8" x 20"	524	1/16" Wire (Coils)	1068
.050" x 1/16" x 20"	1048	3/64" Wire (Coils)	1900
1/32" x 1/16" x 20"	1677	1/32" Wire (Coils)	4272
1/32" x 1/32" x 20"	3354		

From mill all diameters of wire up to 1/2" and strip .003 and heavier up to 8" wide.

EASY-FLO

STANDARD STOCK SIZES OF ALL GRADES

	APPROX. LENGTH OR AREA Per **Troy Ounce (Inches)		APPROX. LENGTH OR AREA Per **Troy Ounce (Square Inches)
1/8" Wire (Coils)	11	*.020" Strip (Coils)	10
3/32" Wire (Coils)	29	*.010" Strip (Coils)	20
1/16" Wire (Coils)	66	*.005" Strip (Coils)	40
3/64" Wire (Coils)	116	*.003" Strip (Coils)	67
1/32" Wire (Coils)	264		
1/64" Wire (Spools)	1168		

From mill all diameters of wire up to 1/2" and strip .003 and heavier up to 8" wide.

*In widths of 1/4" or more.

**A troy ounce is about 10% heavier than an avoirdupois ounce—that is, one troy ounce equals 1.097 avoirdupois ounces. One avoirdupois pound equals 14.583 troy ounces.

Note: Production work is accelerated by the use of preplaced rings, shapes and powder of Easy-Flo and Sil-Fos. These rings and shapes can be made to your specifications in any of the Handy and Harman alloys.

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WELDING
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BRAZING

TECHNICAL BULLETINS and ENGINEERING DATA


•

Every metal—every fabrication process—and almost every industrial field provides the subject matter for the multitude of technical and semi-technical literature written for your use. Even a partial listing of this information would fill many pages and possibly still not lead to the answer to your specific question. Tell us your problems and we shall select and send you the proper subject matter. Our engineering and technical sales division is at your service.

For Metals—and the Answers to Metal Problems

CALL WHITEHEAD FIRST

Special Products *Section*



shot and ingot
castings
wire mesh and rope
tools
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Call **WHITEHEAD**

First!

See inside covers
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SPECIAL PRODUCTS

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SHOT • INGOT • SQUARES

For Foundry Use

PRIMARY NICKEL PRODUCTS

The use of primary nickel products in all phases of the foundry industry is being constantly expanded. However, in order to obtain the greatest value most economically any alloy must be correctly used.

As a customer service, Whitehead Metal Products Co. maintains a staff of foundry engineers qualified to discuss, specify and produce in your plant, ferrous and non-ferrous alloys to meet specific requirements.

Accumulated knowledge, derived from laboratory studies, plant surveys and practical experience, of the performance of alloy steels, cast irons, brasses, bronzes and other alloys containing nickel in a great variety of applications, is yours for the asking. Write for List A which summarizes the available bulletins.

INCO "QM" ("QUICK MELTING") ELECTRO SQUARES

Form 1" squares approximately 1/8" thick

Melting Point 2640° F. but high surface area for weight promotes faster assimilation

Typical Analysis:

Ni	99.95% (Incl. Cobalt)
Fe . . . . .	.01/.04
S	Trace
C	Trace
Si	Trace
Cu . . . . .	.01/.03

Use Especially developed for non-ferrous foundry alloying

Especially adapted for introduction of Nickel into Bronze mixtures to obtain pressure tightness, closer grain refinement and improved strengths, and better machinability.

INCO ELECTROLYTIC NICKEL CATHODE SQUARES

Form . . . Standard Sizes: (all approximately 3/8" - 1/2" thick) 9" x 9", 4" x 4", 2" x 2", 1" x 1"

Melting Point 2640° F.

Typical Analysis:

Ni	99.95% (Incl. Cobalt)
Fe . . . . .	.01/.04
S	Trace
C	Trace
Si	Trace
Cu . . . . .	.01/.03

Use Ferrous or non-ferrous melting

Electrolytic Nickel is essentially free of Carbon, Silicon and Sulphur. It is the purest form of Nickel produced in commercial quantities. It is used principally for Alloying with Steel and production of Nickel Silver and Pure Nickel Castings. Other sizes than above made to order specially.

The Products Listed on This Page Are

WHITEHEAD WAREHOUSE ITEMS

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SPECIAL PRODUCTS • SHOT • INGOT



INCO "F" NICKEL SHOT AND INGOTS

Form.....Shot screened through 1/4" on 30 mesh, and ingots weighing approximately 5 lbs.

Melting Point.....2300° F.

Typical Analysis:

Ni.....	92.00%	(Incl. Cobalt)
S.....	.06	
Si.....	5.50	
Cu.....	.20	
C.....	.55	
Fe.....	Balance	

Use.....Grey iron foundry melting

A special grade Shot recommended for making additions to Cast Iron. The Melting Point of "F" Nickel is sufficiently under that of Cast Iron as ordinarily poured, to insure its complete solution when added to the Ladle or Cupola Spout.

INCO "XX" NICKEL SHOT

Form...Shot of various sizes screened through 1" mesh on .053 mesh, steam shattered thru .053

Melting Point.....2640° F.

Typical Analysis:

Ni.....	99.60%	(Incl. Cobalt)
Cu.....	.04	
C.....	.10	
Si.....	.10	
Fe.....	.15	
S.....	.01	

Use...In melting operations where high surface area promotes rapid melting

Used in the manufacture of Heat Resistant Alloys, Ferro-Nickel Alloys, Nickel Silver, Cupro-Nickel, Nickel Bronze, Etc., and in the production of Nickel Steel by the crucible method of melting.

INCO "NH" PIGS, NICKEL-CHROMIUM-IRON

Form.....Approximately 5-lb. pigs

Melting Point.....2350° F.

Typical Analysis:

Ni.....	46.14%	(Incl. Cobalt)
Cr.....	16.08	
Si.....	.53	
Mn.....	.28	
C.....	1.56	
Cu.....	.24	
Fe.....	Balance	

Use.....Production of "Ni-Hard"*

Especially prepared for use in production of Ni-Hard Cast Iron in Cupola, Electric or Oil-Fired Furnaces. Ni-Hard is an extremely abrasion resistant cast iron.

INCO "NISILOY"

Form.....thru 3/4" over 20 mesh

Melting Point.....1800° F.

Typical Analysis:

Ni.....	60%	(Incl. Cobalt)
Si.....	.30	
Fe and impurities—	Balance	

Use.....Inoculant for addition to grey cast iron to provide improved machinability and controlled grain structure. NOTE: Should never be used as a substitute for any other form of nickel employed as a direct alloying agent to meet a required nickel specification.

INCO NICKEL INGOTS

Form.....10- or 25-lb. ingots

Melting Point.....2640° F.

Typical Analysis:

Ni.....	99.55%	(Incl. Cobalt)
Cu.....	.12	
C.....	.02	
Si.....	.10	
Fe.....	.15	
S.....	.03	

Use.....Ferrous alloying

INCO "NCC" PIGS, NICKEL-COPPER-CHROMIUM-IRON

Form.....Approximately 5-lb. pigs in 500-pound kegs

Melting Point.....2300° F.

Typical Analysis:

Ni.....	57.93%	(Incl. Cobalt)
Cu.....	24.44	
Cr.....	8.32	
Mn.....	.53	
C.....	1.08	
Si.....	1.37	
Fe and impurities—	Balance	

Use.....Production of Type 1 "Ni-Resist"*

Especially prepared for use in production of Ni-Resist Cast Iron in Cupola, Electric or Oil-Fired Furnaces. Ni-Resist is a corrosion and heat resistant material widely used in industry.

ALCOA ALUMINUM INGOT

(3-Segment, 6-lb. Ingot)
99%
435

INCO MONEL SHOT

In approx. 500-lb. Kegs

ANACONDA COPPER SHOT

In approx. 500-lb. Kegs

INCO MONEL INGOTS

5 and 25 lbs.

*Reg. U. S. Pat. Office. The International Nickel Company, Inc.

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CASTINGS TO SPECIFICATIONS

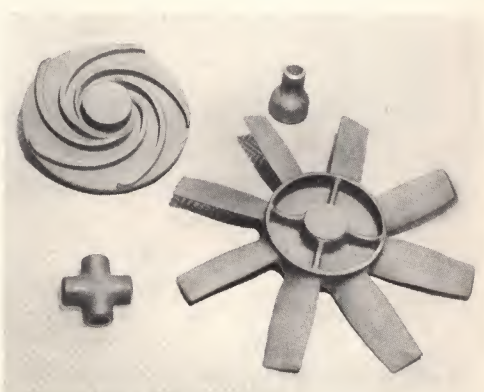
Intricate or unusual shapes can often be made with greater ease and speed and hence more economically by the use of castings. Whenever the castings will be subject to corrosion or require unusual strength and toughness, the choice of a specialized Nickel alloy is advisable. The Bayonne Works of The International Nickel Company offers the latest techniques and metallurgical knowledge in the production of sand and precision investment castings. Sand castings are produced in the following metals—Monel, Nickel, Inconel, as well as "H" Monel and "S" Monel (the latter being heat-treatable alloys of exceptional hardness and strength). Precision investment castings are produced in the aforementioned Nickel alloys, stainless steels, and other high melting point alloys.

INCO SAND CASTINGS

Made in accordance with specifications and can be obtained as sand castings or centrifugal castings. Centrifugal castings can be supplied either Finished or Rough Machined and sizes available are from 2½" I.D. to 19" O.D. by 144" long, depending on diameters and wall thickness.

Patterns can be made to your requirements or any necessary changes made on present pattern equipment. If patterns are supplied, a check should be made to see that they have the proper shrinkage allowance—¼" per foot. Cast sections in general should be ⅜" minimum. Finish allowances for machining should be ⅛" greater than for brass or cast iron.

Special grades "H" Monel and "S" Monel castings have high hardness, 175-275 and 275-325 Brinell, respectively. They are particularly useful for valve trim and similar purposes where corrosion resistance, wear resistance and non-galling characteristics are required.



INCO PRECISION CASTINGS

The process is particularly useful on intricate shapes containing recesses not readily accessible to machine tools and on alloys which are very difficult to machine. Frequently a precision casting can be made of a part which would normally be composed of an assembly of several smaller parts by means of fitting, threading or brazing.

It is generally believed that when the possibilities and limitations of precision castings are more widely understood, the demand for these castings will steadily increase.

Precision castings can be produced economically in runs from a few pieces to many thousands of pieces. The economy increases, of course, with the quantity of production.

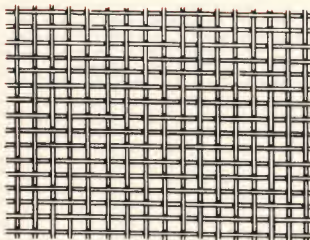
A trained staff of experts is ready to study and help you with your problems of corrosion-resistant cast materials.



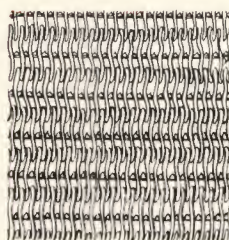
SPECIAL PRODUCTS · WIRE MESH



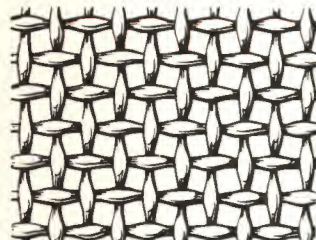
C. O. Jelliff WIRE MESH



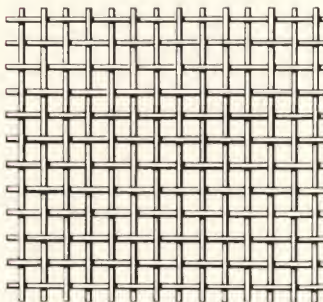
Twilled: A style weave which permits finer meshes with less bend than a given size wire. Its greater pliability recommends it for formed work.



Corduroy: Called also Dutch or Filter Cloth. Warp wires are usually heavier and take no crimp from weaving.



Calendered: Sometimes called Rolled. As name implies, is wire cloth which has been put through a calender roll to flatten out high, rounded surfaces of intersecting wires.



Standard Mesh for general use.

STANDARD MESH WIRE CLOTH

Stock Sizes in 36" Wide Rolls

MESH PER LINEAR INCH CENTER TO CENTER	MONEL			BRASS		
	DIAMETER OF WIRE Inches	WIDTH OF MESH OPENING Inches	APPROXIMATE WEIGHT Per 100 Sq. Ft.	DIAMETER OF WIRE Inches	WIDTH OF MESH OPENING Inches	APPROXIMATE WEIGHT Per 100 Sq. Ft.
2 mesh	.063	.437	57.4 lbs.	.063	.437	56.6 lbs.
4 mesh	.041	.209	48.9 lbs.	.047	.203	63.7 lbs.
6 mesh	.035	.132	54.0 lbs.	.035	.132	53.2 lbs.
8 mesh	.028	.097	46.1 lbs.	.028	.097	45.4 lbs.
10 mesh	.025	.075	46.2 lbs.	.027	.072	57.6 lbs.
12 mesh	.023	.060	47.3 lbs.	.023	.060	46.6 lbs.
14 mesh	.020	.051	41.7 lbs.	.020	.051	41.1 lbs.
16 mesh	.018	.045	38.7 lbs.	.020	.043	47.5 lbs.
18 mesh	.018	.038	44.0 lbs.	.018	.038	43.3 lbs.
20 mesh	.015	.035	33.8 lbs.	.016	.034	38.0 lbs.
24 mesh	.012	.030	25.8 lbs.	.014	.028	35.1 lbs.
30 mesh	.011	.022	27.5 lbs.	.012	.021	32.5 lbs.
40 mesh	.010	.016	27.7 lbs.	.010	.015	30.5 lbs.
50 mesh	.009	.011	31.9 lbs.	.009	.011	31.4 lbs.
60 mesh	.007	.010	22.9 lbs.	.008	.009	26.2 lbs.
80 mesh	.006	.007	19.0 lbs.	.006	.007	18.7 lbs.
100 mesh	.005	.006	15.9 lbs.	.005	.006	15.7 lbs.

All other commercial sizes available promptly from the mill in Aluminum, Brass, Bronze, Copper, Monel, Nickel, Inconel, and Stainless Steel.



SPECIAL PRODUCTS • PERFORATED SHEET

WIRE CLOTH varies according to weave, mesh, wire size and materials used. Proper consideration should be given to these variables when making a selection for specific purposes.

The mesh in wire cloth denotes the number of wires in a linear inch, measured from the center of one wire to one inch distant in the one direction. As there is apt to be confusion as to whether the distance between centers of wire or clear space between wires is meant when dimensions in a fraction of an inch are used, it is always well to specifically designate which of the two measurements is required.

This only applies when the dimensions are expressed in fractions of an inch.

In gauging wire we recommend the use of the micrometer only.

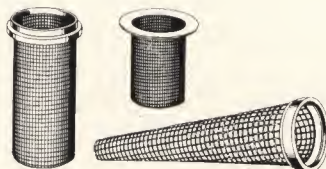
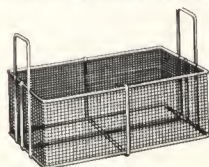
Both wires, the warp and the shute, should be gauged and the mesh of the cloth counted before ordering.

LEKTROMESH

An electrolytically deposited mesh which is wire-less, can be made to follow design patterns, and has been commercially produced in sizes equivalent to 25 to 400 mesh, with controlled uniform hole size.

Produced in sheets or rolls in thicknesses to suit your needs, in Nickel, Copper and Copper-Nickel.

OTHER JELLIFF PRODUCTS



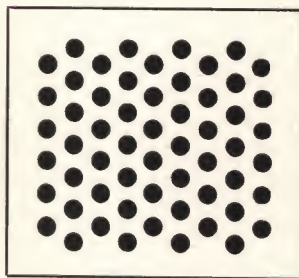
STRAINERS, BASKETS, GASKETED METALLIC FILTER CLOTH, SCREEN CLOTH and fabricated parts to fit your requirements.

PERFORATED SHEET

A wide range of hole shapes and sizes is obtainable as standard perforations in corrosion-resistant metals, thus providing almost limitless open area arrangements. In addition to the basic round, square, slotted or diamond-shaped holes, many designs are available. An illustrated pamphlet may be had on request.

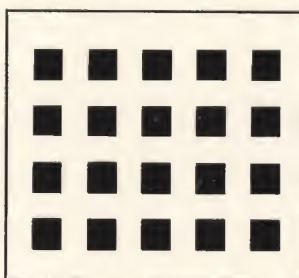
Prompt delivery on Aluminum, Brass, Bronze, Copper, Everdur, Monel, Nickel, Muntz Metal, Nickel Silver, Inconel, Stainless, Lead and Zinc.

STANDARD PERFORATIONS



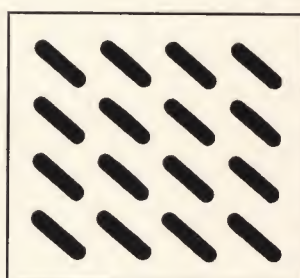
ROUND HOLES
(48 Patterns)

No. 00 Hole (.020") to 1" Dia. Hole



SQUARE HOLES
(13 Sizes)

$\frac{3}{32}$ " Hole to 1" Hole



DIAGONAL SLOTS
(6 Patterns)

AND MANY SPECIAL DESIGNS

The Products Listed on This Page Are

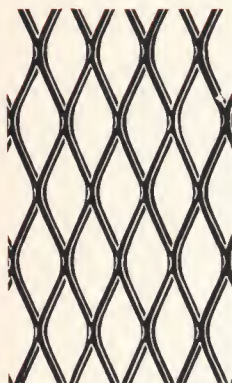
WHITEHEAD MILL ITEMS

DATA

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SPECIAL PRODUCTS · EXPANDED METAL



STANDARD

EXPANDED METAL

Penmetal Expanded Sheet is a precision product in which the dimensions of the diamonds are uniform throughout the sheet. The shape and size of the diamond pattern is attained by piercing the sheet and carefully expanding to a predetermined size without waste with a saving of about 80% in weight. Uses include trays, racks, baskets, grilles, guards, etc., particularly where exposure to attack by corrosives is a problem.



FLATTENED

ALUMINUM EXPANDED METAL

Manufactured from 250 or 350 Aluminum Sheet
Sheet Sizes 3 Feet x 8 Feet and 4 Feet x 8 Feet

APPROXIMATE WEIGHTS AND DIMENSIONS	STANDARD						FLATTENED					
	POUNDS Per Sq. Ft.	SIZES OF MESH (Inches)		SIZES OF STRANDS (Inches)		THICKNESS	WIDTH	POUNDS Per Sq. Ft.	SIZES OF MESH (Inches)		SIZES OF STRANDS (Inches)	
		WIDTH (S.W.D.)*	LENGTH (L.W.D.)*	THICKNESS	WIDTH				WIDTH (S.W.D.)*	LENGTH (L.W.D.)*	THICKNESS	WIDTH
1/2" No. .051	.27	.460	1.20	.051	.087			.25	.460	1.260	.045	.093
1/2" No. .081	.44	.460	1.20	.081	.088			.41	.460	1.260	.067	.101
3/4" No. .051	.17	.923	2.00	.051	.109			.16	.923	2.125	.040	.132
3/4" No. .081-Lt	.32	.923	2.00	.081	.128			.30	.923	2.125	.070	.141
3/4" No. .081-Hy	.41	.923	2.00	.081	.165			.38	.923	2.125	.070	.182
3/4" No. .125	.65	.923	2.00	.125	.170			.61	.923	2.125	.095	.212
1 1/2" No. .081	.22	1.330	3.00	.081	.127			.20	1.330	3.150	.055	.168
1 1/2" No. .125	.43	1.330	3.00	.125	.163			.40	1.330	3.150	.080	.240

MONEL EXPANDED METAL†

Manufactured from Monel Economy Sheet
(Also available in Inconel and Nickel)

Sheet Sizes 3 Feet x 8 Feet and 4 Feet x 8 Feet

1/2" No. 18	.85	.462	1.20	.050	.086	.81	.462	1.26	.040	.103
3/4" No. 16	.57	.923	2.00	.062	.092	.54	.923	2.12	.050	.107
3/4" No. 13	.91	.923	2.00	.093	.098	.87	.923	2.12	.075	.115
1 1/2" No. 16	.46	1.330	3.00	.062	.107	.44	1.330	3.20	.050	.126
1 1/2" No. 13	.68	1.330	3.00	.093	.107	.65	1.330	3.20	.075	.126

†The more popular sizes are carried in stock; others promptly.

EXPANDED STAINLESS STEEL

Manufactured from Stainless Type 302 Sheet
Sheet Sizes 4 Feet x 8 Feet and 6 Feet x 8 Feet

1/2" No. 18	.78	.460	1.20	.050	.086	.74	.460	1.260	.039	.101
1/2" No. 16	.98	.460	1.20	.063	.086	.93	.460	1.260	.051	.101
3/4" No. 18	.47	.923	2.00	.050	.099	.45	.923	2.100	.039	.105
3/4" No. 16	.59	.923	2.00	.063	.104	.56	.923	2.100	.051	.105
1 1/2" No. 16	.43	1.330	3.00	.063	.109	.41	1.330	3.150	.051	.127

*S.W.D. denotes short dimension of diamond, L.W.D. denotes long dimension of diamond, center to center of bridges.

Other alloys, gauges, diamond sizes and sheet sizes can be furnished on special order.



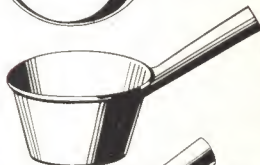
UTENSILS

MONEL AND STAINLESS STEEL

DIPPERS



**Round Bottom,
Heavy Seamless**
2 qt. and 4 qt.



**Flat Bottom,
Seamless**
1 qt. and 2 qt.



Flat Bottom, Seamed
1 qt., 2 qt., 3 qt. and 4 qt.

HAND SCOOPS

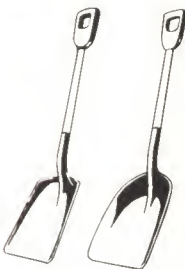


Round Bottom
1 pt., 1 qt., 2 qt. and 4 qt.



Flat Bottom
1 pt., 1 qt., 2 qt. and 4 qt.

SHOVELS



**No. 3—Dee Handle
Square Point**
Monel only

**No. 3—Dee Handle
Scoop**
Monel only

BEAKERS



Standard, Polished
250 cc, 500 cc, 1000 cc,
1500 cc, 2000 cc, 4000 cc



Flanged Lips, Polished
400 cc

Seamed

Reinforced at top by endless iron ring, with handles attached and with iron chime.

10 gal., 15 gal., 20 gal., 25 gal., 30 gal., 40 gal., 50 gal., 75 gal. Metal flanged out over edge of top band and for 1/4" down on outside.

Bottoms are reinforced by an iron cross welded to the chime.

BATCH CANS



Seamed

1 pt., 1 qt., 2 qt., 1 gal., 2 gal.

Funnels are rated in accordance with Navy specifications.

They actually hold considerably less than the rated size.

FUNNELS



BUCKETS



Seamed

10 qt. and 14 qt.

40, 60, 80, 100, 120 mesh screen

MEASURES

Seamed

With collar and side handle
1/2 pt., 1 pt., 1 qt., 2 qt., 1 gal.



Seamed

With collar, bail and pouring handle
2 gal. and 5 gal.

PAILS



All Purpose

12, 14, 16 and 20 qt.

SOLID METAL BALLS



17S-T ALUMINUM BALLS (Sphericity .0002).

For use where weight is a factor.

NAVAL BRONZE BALLS (Sphericity .0002).

Generally used for valve applications.

Brinell Hardness 160-170

K-MONEL BALLS (Sphericity .0002).

Non-magnetic, erosion and corrosion resistant. Particularly efficient under high temperature.

Brinell Hardness 290-300

STAINLESS STEEL BALLS (Sphericity .0001).

Extra hardness and erosion resistance.

Brinell Hardness 290-300

STOCK SIZES

Approximate No. of Balls per Pound

	ALUMI-NUM	BRONZE	MONEL	STAIN-LESS
1/16"	78,400	27,250	24,516	27,904
3/32"	22,400	7,246	7,231	8,264
1/8"	9,746	3,040	2,975	3,400
3/16"	4,964	1,558	1,549	1,770
1/4"	2,864	900	850	1,030
5/16"	1,808	567	560	640
3/8"	1,204	380	380	434
7/16"	852	266	262	300
1/2"	721	195	195	223
5/8"	360	112	112	128
3/4"	231	71	70	80
7/8"	157	47	47	54
1 1/8"	112	33	32	36
1 1/4"	77	24	25	28
1 1/2"	64	18	18	21
1 3/4"	48	14	14	16
2"	..	11	11	12
2 1/4"	..	9	9	10
2 1/2"	..	7	7	8
3"	..	6	6	7

BUSHINGS AND BEARING BRONZES

SUMET BEARING BRONZE

Processed Semi-Finished Bronze Rods

Furnished ± .002 Diameter

A Grade for Every Need

For all types of bearings for production work in automatic and semi-automatic machines.

Seven grades of high leaded bronze manufactured by the Sumet process which produces homogeneous structures having anti-frictional qualities giving highest wearing properties.

Sizes 1/4" to 2" Diameter Rods
in following Lengths:

1/4" to 13/32" incl. 18" to 24"
7/16" to 17/32" incl. 36" to 48"
5/8" to 1 1/2" incl. 48" to 60"
1 1/2" to 2" incl. 48"

ROUGH CAST BEARING BRONZE BUSHINGS

Standard Lengths of 12" Bars

Reasonably Prompt Shipment

Solid Sizes: 1/2" to 6" Diameter

Cored Sizes: 1" to 6" Outside Diameter

1/2" to 5" Inside Diameter

MAGNOLIA BEARING BRONZE BUSHINGS

(Isotropic Die-Cast)

Standard Lengths of 13"

Fully Machined

Available for Immediate Shipment

Solid Sizes: Diameters of 1" to 8"

Cored Sizes: 1" to 9" Outside Diameter

1/2" to 7" Inside Diameter

Will meet "SAE64" Specifications.

MAGNOLIA BABBITT BEARING METAL

Six compositions (tin and lead base) to meet various bearing specifications. Approximate 5-lb. pigs.

ASARCON 773 BEARING BRONZE BUSHINGS

Standard Lengths 13" to 104 7/8"

(Or Cut to Order from 1" Long)

Reasonably Prompt Shipment

Solid Sizes: 1/2" to 4 1/4" Diameter

Cored Sizes: 1/2" x 1" up to 3 1/4" x 4 1/4"







Will meet "SAE660" Specifications.

Pamphlet giving descriptive matter and weights on any of the above Bearing Bronzes will be sent upon request.



SPECIAL PRODUCTS • WIRE ROPE • CHAIN

PREFORMED WIRE ROPE

DIAMETER	MONEL		18-8 STAINLESS STEEL		PHOSPHOR BRONZE	
	BREAKING STRENGTH IN POUNDS	WEIGHT IN POUNDS Per 1000 Feet	BREAKING STRENGTH IN POUNDS	WEIGHT IN POUNDS Per 1000 Feet	BREAKING STRENGTH IN POUNDS	WEIGHT IN POUNDS Per 1000 Feet
1 x 19 CONSTRUCTION (RIGGING)						
 1/16"	330	9	500	7.8	..	..
3/32"	750	20	1200	17.5	..	..
1/8"	1350	39	2100	35	..	..
5/32"	2100	61	3300	55	..	..
3/16"	3000	85	4700	77	..	..
7/32"	4100	110	6300	100	..	..
6 x 7 CONSTRUCTION (SASH CORD)						
 1/16"	200	7.5	385	6.8	150	7
3/32"	445	15.5	800	14	340	15
1/8"	795	28	1400	25	600	28
5/32"	1250	42	2100	38	910	38
3/16"	1800	61	3000	55	1320	60
1/4"	3150	106	5200	94	2280	110
7 x 7 CONSTRUCTION (SASH CORD)						
 1/16"	220	8.3	480	7.5	..	..
3/32"	480	17.7	920	16	..	..
1/8"	850	31	1700	28	..	..
5/32"	1350	47	2600	43	..	..
3/16"	1900	68	3700	62	..	..
1/4"	3400	117	6100	106	..	..
6 x 42 CONSTRUCTION (TILLER ROPE)						
 3/16"	995	43	..	..	760	42
1/4"	1750	77	..	..	1350	75
5/16"	2750	120	..	..	2070	115
3/8"	3950	175	..	..	2960	168
7/16"	5400	230	..	..	4042	227
1/2"	7050	310	..	..	5190	295
6 x 19 CONSTRUCTION (CABLE)						
 3/16"	1800	66	3200	60	1370	60
1/4"	3250	110	5600	100	2380	110
5/16"	5050	176	8600	160	3670	160
3/8"	7300	255	12200	230	5240	230
7/16"	9950	340	..	..	7080	320
1/2"	13000	440	..	..	9210	410
7 x 19 CONSTRUCTION (CABLE)						
 3/16"	1950	71	3900	65	..	..
1/4"	3500	120	6600	110	..	..
5/16"	5450	190	9600	173	..	..
3/8"	7850	270	12000	243	..	..
7/16"	10700	390	16000	356	..	..
1/2"	13950	505	22800	458	..	..
3/4"	21800	790	35000	715	..	..
1"	31400	1160	49600	1050	..	..

SASH CHAIN

STYLE No.		LINK SIZES (In Inches)		
MONEL	BRONZE	WIDTH	LENGTH	THICKNESS
8	8	1/4"	5/8"	.035
..	25	1/4"	11/16"	.042
30	30	11/32"	11/16"	.028
35	35	11/32"	11/16"	.035
40	40	11/32"	11/16"	.042
..	45	23/64"	3/4"	.050
50	50	23/64"	3/4"	.060

The sizes listed for Monel are stock items. Bronze is promptly available in the sizes listed. Other sizes on special order.

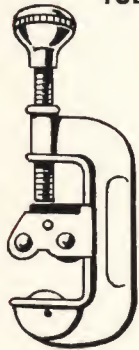
MONEL LINK CHAIN

The higher tensile strength of Monel makes possible the use of lighter weight link sections with no sacrifice in strength. Because of this strength plus its resistance to acids, Monel link chain has a history of proven economy in pickling and heat treating applications. A complete variety of standard chain sizes from 1/4" to 1 1/4" is available from the mill with chain accessories such as hooks, open links, U bolts, rings, etc., or in assembled slings.

For further information, consult the Whitehead office nearest you.

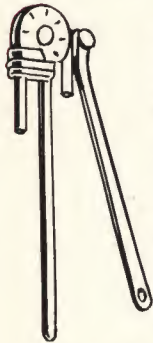
TOOLS

No. 216 and No. 832 PARKER TUBE CUTTERS



Rugged, adjustable cutting tool for producing clean, square ends on steel and stainless steel tubing as well as on the softer copper, brass and aluminum alloy tubing. Ball handle feeds cutting wheel with even pressure as cutter is rotated around tube. Uniform tension leaves no external burr and practically no internal burr. Replacement cutter wheels and shoulder screws available: 216 for tube O.D. $\frac{1}{8}$ " to 1" inclusive, 832 for tube O.D. $\frac{1}{2}$ " to 2" inclusive.

No. 2829 PARKER HAND TUBE BENDER



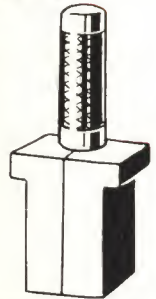
Easy-to-use, efficient tool for bending small size tubing of soft copper, brass, aluminum alloy or fully annealed steel. Produces bends without wrinkling or perceptible flattening. Sheave block graduated in 15° angles from 0° to 180° for accuracy of bends. Handy for use in close quarters where it is undesirable to remove partially installed tube for bending. 5 sizes available, tube outside diameters $\frac{1}{8}$ ", $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ".

No. 2829A PARKER HAND TUBE BENDER



Sturdy tool for bending tubing of copper, brass, aluminum alloy, or fully annealed steel—(except that size 16 is not recommended for steel as steel tubing of this size, particularly with heavy wall, has tendency to slip and flatten out). Produces accurate bends. If necessary, one handle of bender can be placed in vise to facilitate bending. 5 sizes available, tube outside diameters $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1".

No. 2866 VISE BLOCK AND FLARING PIN



Combination set of vise block and tapered pin for flaring copper, aluminum alloy, steel, or stainless steel tubing—of **heavy** as well as normal wall thickness. Provides flare suitable for Triple-lok, Triple, Triple XX, or AN tube fittings. Separate set required for each size of tubing. For tube outside diameters $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $1\frac{3}{4}$ ", 2".

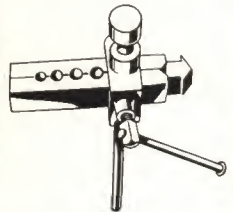
HAMMER-TYPE FLARING TOOL

Screw-in pin tool that utilizes nut and sleeve of fitting to produce proper flare. For flaring copper or aluminum alloy tubing, also fully annealed steel tubing of thin to moderate wall thickness. A major advantage: tube which has bend immediately adjacent to end can be flared with this tool. For tube outside diameters $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ ", 1". Specify fitting to be used (Triple-lok, Triple, Triple XX, or AN).



No. 410 COMBINATION FLARING TOOL

Rugged, general utility combination tool, with series of holes in die block to accommodate 5 medium sizes of tubing, $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ". For flaring copper, aluminum alloy, or fully annealed steel tubing. Provides flare suitable for Triple-lok, Triple, Triple XX, or AN tube fittings.



No. 2343 SMALL COMBINATION FLARING TOOL

Small combination tool, with 2 grooves for flaring $\frac{1}{8}$ " and $\frac{3}{16}$ " outside diameter tubing. Pin is used in either opening. Provides flare suitable for Triple-lok, Triple, or AN fittings.

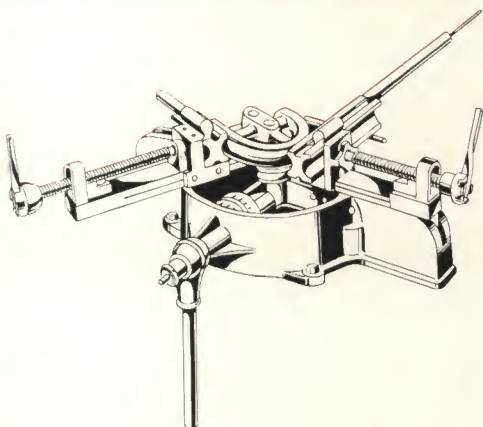


MODEL G824 PRODUCTION TUBE BENDER

Simply designed and constructed, the Parker G824 tube bender is easy-to-operate equipment for general utility bending work in tube fabricating shops, in factories and processing plants for maintenance repairs, on trucks for field service.

CAPACITY: $\frac{3}{8}$ " to $1\frac{1}{2}$ " outside diameter soft annealed copper or aluminum alloy tubing, and $\frac{3}{8}$ " to 1" outside diameter steel tubing. Furnished with handle and speed screw clamps. Mandrel, mandrel rod, mandrel rod stop assembly or extractor, radius blocks, clamp and slide blocks, and other accessories are purchased separately.

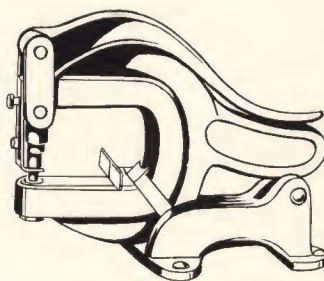
Readily interchangeable radius and clamp blocks permit adjustment for great variety of specified bends—right and left hand, offset, U, and bends in middle of long tubes.



PARKER-KALON COMBINATION BENCH AND HAND PUNCH

The Parker-Kalon No. X.X. Punch has a throat opening of $3\frac{1}{2}$ " deep by $2\frac{1}{8}$ " high. It will punch clean holes with remarkable ease in all gauges of sheet metal within its capacity, which is $\frac{1}{4}$ " hole in 14 gauge, $\frac{3}{8}$ " hole in 16 gauge, $1\frac{1}{32}$ " hole in 18 gauge, or equivalents. The punches and dies are quickly and easily changed.

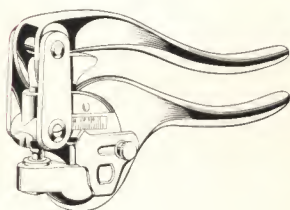
Frame and handle are steel forgings and all moving parts are of tool steel individually hardened and tempered. Complete with bench stand, gauge, stripper, and one punch and die of any stock size. (Punches and dies for the X.X. are stocked in a range of sizes from $\frac{3}{32}$ " to $1\frac{1}{32}$ " by 32nds.)



PARKER-KALON HAND PUNCH

No. O.X. Complete with 7 punches and dies (one each $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{5}{32}$ ", $\frac{3}{16}$ ", $\frac{7}{32}$ ", $\frac{1}{4}$ ", $\frac{1}{4}$ ") in sturdy steel tool case.

Toggle joint construction gives 48 pounds of pressure for each pound of pressure exerted on handle. Handle and frame made of high carbon steel forgings. Hardened steel side links. Front pointer and side gauge. Measures 8" overall. Weight $2\frac{5}{8}$ pounds. Depth of throat with gauge in place, 1"—with gauge removed, $1\frac{1}{4}$ ". Space between punch and die $\frac{3}{16}$ ". Will punch holes up to $\frac{1}{4}$ " diameter in 14 gauge steel or equivalent.



ALUMILASTIC SEALING OR CAULKING COMPOUNDS

An Aluminum base elastic compound for sealing joints or connections which must be watertight and weather-proof. Corrosion-resistant and long-lasting, it provides an excellent seal for metal-to-metal, wood-to-metal, glass, canvas and other materials which must be tightly joined.

GRADE	CB	C	C1	C2	B
CONSISTENCY	Heavy brushing or caulking gun	Hand or power caulking gun	Putty knife or high pressure caulking gun	Heavy putty knife	Thin brushing
CONTAINERS	1 and 5 gal. cans	$\frac{1}{4}$ and 1 gal. cans	1 gal. cans	$\frac{1}{4}$ and 1 gal. cans	$\frac{1}{4}$, 1 and 5 gal. cans

←
SHEETS

←
RODS

←
SHAPES

←
PIPE
TUBE
VALVES
FITTINGS

←
FASTEN-
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←
WELDING
AND
BRAZING

SPECIAL
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TECHNICAL BULLETINS and ENGINEERING DATA

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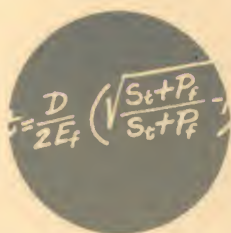
Every metal—every fabrication process—and almost every industrial field provides the subject matter for the multitude of technical and semi-technical literature written for your use. Even a partial listing of this information would fill many pages and possibly still not lead to the answer to your specific question. Tell us your problems and we shall select and send you the proper subject matter. Our engineering and technical sales division is at your service.

For Metals—and the Answers to Metal Problems

CALL WHITEHEAD FIRST



Data *Section*



technical briefs
corrosion data
metal properties
gauge comparisons
weights and measures
tables
and other useful information



DATA



Call **WHITEHEAD**

First!

See inside covers
for addresses and
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DATA

The tables, formulae and other data presented on these pages have been selected to answer the most frequent questions asked by the metal user. They are but a small part of the store of technical information printed in bulletin form or available from the files of the research departments of the manufacturers whose products Whitehead distributes.

For metals—or the answers to metal questions—Call Whitehead First.

TECHNICAL BRIEFS

A condensed explanation of the practical meanings of technical terms that are used when measuring and describing the properties of metals and alloys. Tensile Properties, Torsional Properties, Hardness, Toughness, Shear Strength, Endurance Limits, Creep and Stress to Rupture, Oxidation at High Temperatures and Corrosion are discussed in turn and an alphabetical glossary of terms concludes the section.

TENSILE PROPERTIES

Yield Strength

When a metal part is overloaded, it suddenly stretches rapidly at a point called the Yield Strength. Then it is permanently deformed but unbroken. In actual service, the Yield Strength of a material is usually much more important than its Breaking or Ultimate Strength (also termed Tensile Strength).

The tensile strength of a material is the load per square inch of cross section required to fracture it. But a metal part may be rendered useless without being actually broken. If it is stressed to the point where it yields, or deforms permanently, it usually is unfit for further service unless repaired.

It is a common practice to measure "yield strength" of materials as the stress which would produce a certain permanent "set," usually at 0.2% offset elongation.

Obviously, the term "Yield Strength" is meaningless, unless it is defined as to the percent offset used in measuring it. The greater the amount of the offset used, the higher will be the value of "Yield Strength." In comparing yield strengths of metals one should note the definition of "Yield Strength" which is used.

Proportional Limit

For most applications Yield Strength data are sufficient to act as a basis of design. However, there are many other applications which require that we know just how far a

metal may be stressed without taking any permanent set or even without varying from a straight line relation of stress to strain. Such applications require a knowledge of the proportional limit or the elastic limit of the material. Proportional Limit is a maximum stress under which a material will maintain a perfectly uniform rate of strain to stress, or, in other words, "Yield Strength at 0.00 percent offset."

Elastic Limit

Most materials can be stressed slightly above the Proportional Limit without taking any permanent set, and will return to the same original length when the test load is released. The maximum stress from which a material can recover completely is called the Elastic Limit.

Proof Stress

Proof Stress is the maximum stress a material can withstand without taking more than a very small specified amount of set. The amount is usually specified as the smallest that can be measured by the extensometer, namely, 0.01 percent in 2 inches.

Modulus of Elasticity

"Modulus of Elasticity," in spite of its formidable sound, is quite elementary after all. It is a measurement of stiffness or rigidity, one of the fundamental properties of any material. The higher the modulus, the stiffer the material. By definition, modulus of elas-

ticity is the ratio of the stress intensity (lb. per sq. in.) on a material to the unit strain (in. per in.) produced, provided the stress does not exceed the proportional limit of the material. The unit of measurement of this property is, therefore, lb. per sq. in.

In many applications this greater stiffness may be more important than strength. In shafting, pump rods, etc. a high modulus means better performance of closely adjusted equipment, less whipping and vibration of shafts and consequently less tendency to wear unevenly in bearings.

For example, a 1-inch shaft strong enough for a given job might be unsuitable because of excessive bending. A heavier shaft would have to be used, or extra bearings provided. A material with higher modulus might overcome this difficulty without increasing either the shaft size or the number of bearings.

In such applications as diaphragms, flat springs or coil springs, stiffness is even more important. A very definite degree of movement is required at a definite load.

Ductility

Even though two metals have exactly the same strength and hardness, parts made of one metal may successfully absorb overloads which would break parts made of the other metal. The reason is the difference in ductility.

The common practice of evaluating the relative usefulness of metals and alloys on the basis of tensile strength and hardness leads sometimes to erroneous conclusions. Strength and hardness are a measure of resistance to permanent deformation; they are important in many cases but contribute to difficulty in fabricating operations.

A second characteristic of metallic materials which must be considered is ductility. Ductility is that property of a material which allows it to be deformed without rupture; in other words, it is the ability of a material to be manipulated by cold-working methods—

bending, deep drawing, spinning, cold heading—without undue effort. The lack of ductility is commonly called brittleness.

A good combination of strength and ductility in a metal or alloy is an excellent indication of its suitability for engineering uses. If two alloys have equal strength and hardness, that with the higher ductility is the more desirable.

Bolts, more than almost any other metallic product, require a high degree of ductility as well as high strength. To provide for over-stressing, which results often with hand tightening, a bolt with high ductility is necessary.

TORSIONAL PROPERTIES

The suitability of a material for such parts as pump shafts and propeller shafts which must withstand twisting and wrenching stresses is judged by measuring its torsional properties as it is twisted in the torsion test.

Torsion means the twisting of a body by a lateral force which turns one end, or part, of the body about a longitudinal axis while the other end, or part, is held fast or turned in the opposite direction. Torsional tests are made in this manner to determine the torsional properties of materials. These properties evaluate the suitability of rods, bars and wires of metals and alloys for engineering uses which involve lateral as well as longitudinal stresses. A satisfactory material for such applications as propeller shafts and pump shafts must have sufficient torsional strength to support normal loads and occasional moderate overloads. It must have also adequate ductility to prevent fracture when high overloads are applied suddenly, as when a motorboat propeller strikes driftwood.

When torsional tests are made on rods and bars, the strength factors determined are those which are common to the tensile test. Each factor is expressed in pounds per square inch (psi.).

HARDNESS

In selecting a metal or alloy to resist wear or erosion there are three properties to consider—its ductility, toughness and hardness. Hardness is generally the most important. Hardness is that property of a material which enables it to resist plastic deformation. The method of deformation—penetration, indentation, or scratching—determines the type of hardness. No one method of hardness testing is applicable to all shapes of wrought materials; therefore, several types of hardness-testing machines have been developed. Four machines are used most often, viz.: Brinell, Rockwell, Vickers and Scleroscope.

Brinell

This method is used for testing sections approximately $\frac{1}{4}$ in. thick, or thicker, depending upon hardness. A 10-mm. diam. hardened steel ball is impressed into a flat and reasonably scratch-free surface of a metal under loads of 3000 kg. for 15 to 30 sec., or 500 kg. for 30 to 60 sec.; the latter is used only with soft metals and alloys. The diameter of the impression produced by the ball is measured with the aid of a microscope and converted, from a chart, to a Brinell Hardness Number (BHN). Values are expressed as, for example: 250 BHN (3000 kg.) or 100 BHN (500 kg.).

Rockwell

In this method, hardness is measured by the depth of permanent penetration by a steel ball, or diamond cone (Brale), under standard applied load. A smooth and flat specimen surface is necessary. After the application of a preliminary load of 10 kg., the recording dial is "set" and the major load applied. When the dial pointer comes to rest, indicating that further penetration has ceased, the major load is released and the hardness read directly from a reversed scale on the indicator dial. Although several scales

are available, only the "B" and "C" scales are used normally and the values are expressed, for example as: 88 Rb or 30 Rc.

Vickers

This method is the most reliable measure of hardness. The principles involved are practically identical with those of the Brinell method. A selected load of 1 to 120 kg. is impressed with a pyramidal diamond indenter at a point upon a carefully polished surface of the specimen. The hardness number is the ratio of the impressed load to the area of resulting indentation, has the same dimensions as the Brinell number, namely kg./mm.², and is obtained by micrometric reading of the impression diagonal and subsequent reference to standard charts. It is practically constant irrespective of the applied load and is slightly higher than the BHN, especially on hard material. Very thin sections of metal may be tested by using small loads. A 2-mm. diam. hardened steel ball may be substituted for the diamond pyramid and is used generally with the 120-kg. load which gives the same ratio of load to (diam.)² as is standard in the Brinell method. Values are expressed as, for example;

250 VHN 10-p—i.e., number 250, determined with a 10-kg. load and a diamond pyramid.

150 VHN 120-b—i.e., number 150, determined with a 120-kg. load and a 2-mm. diam. steel ball.

Scleroscope

Of the several methods herein discussed, this is the most rapid method for testing hardness, but it permits considerable personal error and its values are the least precise. A diamond-tipped metallic hammer drops by gravity from a fixed height and its rebound is registered on a graduated scale. The method will test relatively thin sheet or strip sections. If a Vickers machine is not

available, very thin sections may be tested with the Scleroscope if sufficient thicknesses are packed together to prevent the hammer from penetrating into the metal to an extent where its rebound is influenced by the steel anvil. This is known as the "anvil effect." A magnifier hammer, with a larger point area, is available for the softer metals. Values are expressed as, for example; 18 scleroscope. Other hardness testing devices which are used occasionally for hardened steels, and seldom for non-ferrous alloys, are Monotron, Bierbaum scratch-hardness tester and file.

TOUGHNESS

Impact Strength

Whether a material will break or stand up under a hard blow or a sudden wrench depends on its Toughness.

Impact strength evaluates the toughness of a material better than any other single property. Such data are useful in comparing the toughness of different metals and alloys, although there are some limitations to its use. Metals of widely different strength and hardness should not be compared. The greatest usefulness is in comparing metals of similar strength, especially in examining the effects of various heat treatments and methods of manufacture on the same type of material. The two methods most commonly used at the present time are the Izod and the Charpy tests. Both these tests use a notched specimen and fracture occurs in bending. These tests are affected somewhat by the susceptibility of a material to failure due to localized stresses near a sharp notch, as well as its toughness. In both cases the specimens are machined to exactly specified cross sections. The location and shape of the notch is standard also. The points of support of the specimen, as well as the point of impact of the

hammer, must bear a constant relationship to the location of the notch.

Measuring Impact Strength

These two methods also are standardized as to the weight and speed of the hammer at the time of impact. The tests are carried out by mounting the specimens as shown, and then allowing a pendulum of given weight to fall from a given height. The weight and height are such that in the Izod test the maximum energy developed by the hammer is 120 foot-pounds and in the Charpy test 240 foot-pounds. After the hammer strikes the specimen it will either be stopped completely or will pass through or over the broken or partially broken specimen and swing upward to some degree in the other direction. By properly calibrating the machine, the energy absorbed by the specimen may be measured from the height of the upward swing of the pendulum. The greater the amount of energy absorbed by the specimen, the less will be the upward swing of the pendulum.

Tension Impact and Torsion Impact

Two useful variations of the standard Izod and Charpy impact tests are the Torsion Impact and the Tension Impact tests. These tests show whether or not a material is tough enough to be used for, say, bolts that must stand sudden yanks, or propeller shafts that get a twisting jolt every time the propeller smashes into driftwood.

Torsional Impact

When a material is to be used in a rotating member, such as a pump shaft, it is desirable to know its impact strength in torsion. By properly machining and mounting a specimen, the standard pendulum-type impact testing machine can be adapted to this purpose.

Tension Impact

Materials may be tested in tension impact by mounting one end of a reduced-section specimen in the machine and allowing the hammer to strike projections on the other end. This test is especially useful in connection with bolts, as well as numerous other mechanical elements.

SHEAR STRENGTH

One of the most essential properties a material must have for such uses as bolts, rivets, pinions, taper pins, or keys is good Shear Strength. This is the stress, expressed in pounds per square inch, required to produce fracture when impressed vertically upon the cross section of a material. The action of pulling apart a single-lap, riveted joint involves single shear; the action of pulling apart a double-lap, riveted joint involves double shear. For all practical purposes, the double shear strength is twice the single shear strength.

The values for the shearing strengths of five typical Nickel alloys are 52 to 77 per cent of the ultimate tensile strengths, the lower values being for the harder materials. These are comparable to similar ratios for mild and alloy steels, which range from about 60 to 80 per cent, although the double shear strength of steel is 10 to 20 per cent lower than those of the high-nickel materials having equivalent hardness.

ENDURANCE LIMITS

A metal that is flexed back and forth will often become tired and fail at a point well below its yield strength. This failure is termed Fatigue Failure, and usually occurs without warning since there are no tell-tale signs of weakness in the affected metal.

The mechanical properties discussed in previous pages—proportional limit, proof stress, and yield strength—indicate the magnitude of safe loading for materials which

are used under constant or intermittent static stress. Similarly, Fatigue Strength (preferably Endurance Strength), Endurance Limit and Corrosion-Fatigue Strength indicate the magnitude of safe loading for materials that are used under repeated, cyclic changes of stress.

Endurance Limit is the highest stress, in pounds per square inch, the application of which can be repeated indefinitely without failure of the material. Endurance Limit represents indefinite life and is expressed usually in terms of half stress range for reversed bending and in full stress range for other cases.

As can be seen from the above, there are many values of fatigue strength for a particular type of stress—depending upon the cycles of reversed load—but only one value for endurance limit. The Endurance Ratio is the endurance limit divided by the tensile strength. For steels, the value is relatively constant up to approximately 400 Brinell, but decreases with increased hardness; for most non-ferrous materials, it decreases as tensile strength increases.

CREEP AND STRESS

In the usual high-temperature applications, the most important mechanical property is Creep, or the rate of extension under a constant load. Essential also is resistance to oxidation. The plastic behavior of a metal under constant load and at constant temperature consists of three stages. In the first stage, the metal elongates rapidly but at a decreasing rate. In the second stage, ordinarily of long duration, the rate of elongation is constant. In the third stage, the rate of elongation increases rapidly until the metal fails.

Why Second-Stage Creep is Most Important

Creep strength is most useful to the design engineer when converted into Limiting stress. This is the level in the second-stage creep

when elongation takes place at a constant specific rate. The per cent elongation and time are dictated by the requirements of the particular application. An example would be 0.1 per cent elongation in 10,000 hours. A great deal of chemical processing and heat-treating equipment has been designed on the basis of some arbitrary percentage of the strength for one Creep Rate Unit (or CRU), which is equivalent to 1 per cent in 10,000 hours. On the other hand, rapidly rotating structural members like the rotors and blading of steam and gas turbines require small but extremely critical clearances. Their designer will be satisfied with nothing short of the experimentally determined stress for 0.1 CRU or 1 per cent in 100,000 hours.

OXIDATION AT HIGH TEMPERATURES

All the strength in the world is of no use if a material is rapidly burned away. Thus, in any high temperature application, an alloy's resistance to oxidation and corrosion is by far its most important property.

How a Metal Reacts to Oxidation

The resistance of a metal or alloy to oxidation at high temperatures is determined largely by the properties of the scale that forms upon it. Laboratory investigations have shown that the oxidation of many metals proceeds according to a parabolic relationship between the thickness or weight of the oxide film and the time. This relationship is to be expected if oxidation progresses by the diffusion of metal or oxygen through the oxide film. This means that the heavier the film grows, the more protection it affords, and the lower the rate at which additional oxide is formed. This is more or less valid for fairly short periods of time, but does not hold for prolonged exposures at high temperatures. As the film thickness increases, it becomes more susceptible to rupture or cracking. How-

ever, these cracks are often self-healing and simply result in a temporary break or off-setting in the curve, which soon follows the same course as originally.

Stress is the agent chiefly responsible for film break-downs. The unconstrained volume of oxide is usually a good deal greater (16 to 99 per cent) than that of the metal from which it was formed. Thus, a freshly formed oxide film is in a state of considerable lateral compression and this compression acts to break down an oxide film. Spalling or flaking of the oxide is by far the most dangerous in practical applications of heat-resisting alloys. It means that a small section of the original thickness has been irretrievably lost and an equivalent area of fresh metal surface exposed for further oxidation and repetition of this destructive cycle.

Effect of Heating and Cooling

When an oxidized piece of metal is cooled, the compressive stresses in the film may be increased considerably because the underlying metal contracts more rapidly than the oxide film does. Moreover, most of the oxide was formed at a high temperature, when the heat-expanded metal was at the point of its greatest length and surface. Quenching or rapid cooling is even more damaging, because of the thermal shock effects.

CORROSION

The deterioration of metals in contact with solutions and vapors can be controlled and reduced if an equipment-user understands the chemical reactions that are taking place.

In its broadest sense, corrosion is the destructive alteration of a solid body by chemical or electrochemical reactions arising on the surface. The common form of it is the destruction of metals by chemical solutions. The fundamental reaction involves a transfer of electrons in which some of the positively

charged ions in the chemical solution—usually hydrogen ions—lose electrical charges to the metal being corroded. An equivalent amount of metal thus goes into solution. The factors that enter into this process are many and complicated. Let us consider briefly a few of the most important ones.

Some Important Factors in Corrosion

(1) **Acidity of the Solution.** A discharge of hydrogen ions takes place in most corrosive reactions. Acid solutions contain an excess of hydrogen ions. In fact, the strength of an acid is measured by the number of free hydrogen ions in it. Hence, acid solutions are usually more corrosive than neutral or alkaline solutions. Nickel and its alloys are resistant to corrosion over a wide range of acidity and alkalinity. In most alkaline solutions they remain practically unattacked. But the acidity or alkalinity of a solution is very important in any corrosion problem.

(2) **Aeration and Oxidizing Agents.** Some metals do not evolve hydrogen readily as a gas, even in strongly acid solutions. Nickel, Monel and Inconel fall into this class. The presence of dissolved air or oxidizing agents is usually necessary before corrosion of these resistant metals can take place in acid solution. Dissolved air may also tend to accelerate corrosion in neutral and alkaline solutions. Note that some oxidizing agents, like chlorine, do not contain oxygen themselves, but have the power of making it available in acid solutions. Moreover, oxidizing agents may sometimes actually retard corrosion of some metals, such as stainless steels. On the surfaces of these metals, the agents form oxide films that are more resistant to chemical attack than the metals themselves.

(3) **Temperature.** Generally speaking, an increase of temperature will increase the corrosion rate of most metals in most solutions. However, if the temperature increase is great enough to expel air, it may reduce

corrosion in those cases where oxygen is necessary for corrosion to proceed. For instance, if all the air is boiled out of a dilute sulfuric acid solution, the corrosion rate of Monel in that solution will be considerably diminished. On the other hand, stainless steel will corrode more rapidly owing to the loss of oxygen needed to maintain its protective film.

(4) **Velocity.** An increase in velocity between metal and solution usually increases corrosion. This happens when a solution is agitated. When agitation is necessary, it is wise to provide a metal that does not depend on a layer of insoluble corrosion products for its resistance. Under velocity conditions, these are usually removed. The metal chosen should be inherently resistant all the way through.

(5) **Effect of Films.** Films of corrosion products are in some cases very beneficial, in some cases indifferent, and in others quite harmful. A passive film, impervious to the corroding liquid, will frequently provide complete protection against further corrosion. If a film is pervious, it affords no protection. A film that forms in discontinuous patches will frequently localize corrosion in particular areas, or induce accelerated electrolytic corrosion at certain points. And this, naturally, is harmful.

(6) **Concentration Cells.** One of the factors that influence the tendency of a metal to dissolve in a solution is the amount of metal that has already dissolved. This dissolved metal exists in solution in the form of electrically charged ions. Now, if these ions are more concentrated at one point on the surface than at another, they will set up an electrical current between the two points. This is called a "metal-ion cell." To provide fuel for this cell, solid metal must dissolve. The result is accelerated corrosion at the point of lower ion concentration. Metal-ion cells are usually responsible for corrosion at

breaks in scale deposits, and frequently in stagnant areas subject to differences in velocity. Differences in oxygen concentrations on a metal surface produce a similar effect, and an "oxygen-concentration cell" will tend to accelerate corrosion of the low oxygen area. Cells of this kind are a frequent cause of pitting.

GALVANIC CORROSION

Galvanic corrosion may be defined as accelerated electro-chemical corrosion produced when one metal is in electrical contact with another more noble metal, both being in the same corroding medium or electrolyte. Corrosion of this type results usually in a higher rate of dissolution of the less noble metal and protection of the more noble metal. During the corrosion process an electric current is generated by the two metals in contact. The magnitude of this current is equivalent to the acceleration of the corrosion of the more vulnerable material beyond its normal rate.

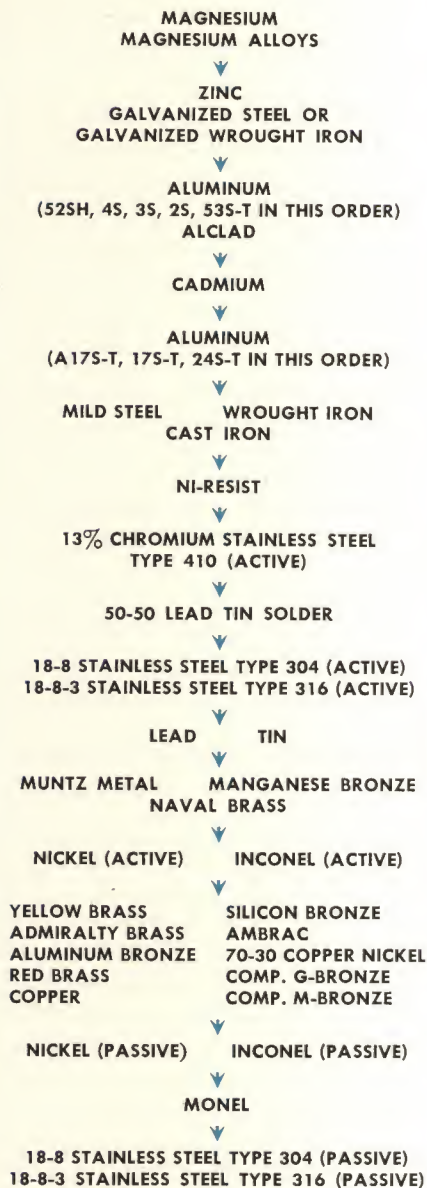
The general reaction is similar to that of a miniature cell, or battery. The simplest and best known example of such a galvanic cell is the one composed of strips of zinc and copper joined by a metallic conductor and immersed in a dilute solution of sulfuric acid. In this cell the less noble zinc strip suffers accelerated corrosion while the more noble copper is virtually unattacked.

The Galvanic Series

From the Galvanic Series (at right) it is possible to tell the tendencies of metals and alloys to form galvanic cells and to predict the probable direction of the galvanic effects. The metals and alloys have been divided into groups. Those grouped together have no strong tendency to produce galvanic corrosion on each other. From the practical standpoint they are relatively safe to use in contact with each other. The coupling of two metals from different groups and

GALVANIC SERIES IN SEA WATER

**Corroded End (anodic, or
least noble)**



**Protected End (cathodic, or
most noble)**

distant from each other in the list will result in galvanic, or accelerated, corrosion of the one higher in the list. The farther apart the metals stand, the greater will be the galvanic tendency, as may be determined by measurement of the electrical potential difference between them.

Effect of Anode and Cathode Areas

In any galvanic combination the relative areas of the two materials forming the couple have a very important bearing on the extent of corrosion. Under many conditions the extent of galvanic effect will be directly proportional to the ratio of the area of the metal lower in the list to the area of the metal higher in the list. Thus, if a piece of steel having a surface area of two square inches is coupled to a piece of copper having a surface area of one hundred square inches the galvanic corrosion is roughly fifty times faster than it would be if the same piece of

steel were coupled to a piece of copper having a surface area of two square inches. For this reason it is wise to avoid galvanic couples where the exposed area of the metal lower in the galvanic series is much greater than that of the metal higher in the series. As a practical example, it would be definitely dangerous to use a steel rivet in a copper plate, but reasonably safe to use a copper rivet in a steel plate.

To Prevent Galvanic Action

Galvanic effects are not responsible for as many cases of corrosion failure as are generally attributed to them. Often a failure from galvanic corrosion can be traced to an unusually poor choice of different materials for the application. It is good practice to use the relatively noble metals and alloys for fastening devices or other parts in equipment built, for economical reasons, from the less corrosion resistant materials.

CHEMICAL SYMBOLS

Aluminum.....Al	Fluorine.....F	Mercury.....Hg	Silicon.....Si
Antimony.....Sb	Gadolinium.....Gd	Molybdenum.....Mo	Silver.....Ag
Argon.....A	Gallium.....Ga	Neodymium.....Nd	Sodium.....Na
Arsenic.....As	Germanium.....Ge	Neon.....Ne	Strontium.....Sr
Barium.....Ba	Gold.....Au	Nickel.....Ni	Sulphur.....S
Beryllium.....Be	Hafnium.....Hf	Nitrogen.....N	Tantalum.....Ta
Bismuth.....Bi	Helium.....He	Osmium.....Os	Tellurium.....Te
Boron.....B	Holmium.....Ho	Oxygen.....O	Terbium.....Tb
Bromine.....Br	Hydrogen.....H	Palladium.....Pd	Thallium.....Tl
Caesium.....Cs	Illinium.....Il	Phosphorus.....P	Thulium.....Tm
Cadmium.....Cd	Indium.....In	Platinum.....Pt	Thorium.....Th
Calcium.....Ca	Iodine.....I	Potassium.....K	Tin.....Sn
Carbon.....C	Iridium.....Ir	Praseodymium.....Pr	Titanium.....Ti
Cerium.....Ce	Iron.....Fe	Radium.....Ra	Tungsten.....W
Chlorine.....Cl	Krypton.....Kr	Radon.....Rn	Uranium.....U
Chromium.....Cr	Lanthanum.....La	Rhodium.....Rh	Vanadium.....V
Cobalt.....Co	Lead.....Pb	Rhenium.....Re	Xenon.....Xe
Columbium.....Cb	Lithium.....Li	Rubidium.....Rb	Ytterbium.....Yb
Copper.....Cu	Lutecium.....Lu	Ruthenium.....Ru	Yttrium.....Y
Dysprosium.....Dy	Magnesium.....Mg	Samarium.....Sm	Zinc.....Z
Erbium.....Er	Manganese.....Mn	Scandium.....Sc	Zirconium.....Zr
Europium.....Eu	Masurium.....Ma	Selenium.....Se	

DEFINITIONS AND GLOSSARY

A

AGE-HARDENING (Precipitation Hardening)—A process for the heat-treatment of certain non-ferrous alloys to increase strength and hardness.

ANNEALING—Heating and cooling primarily (a) to induce softness, (b) to relieve internal stresses, (c) to obtain the optimum combination of strength and ductility. See "Stress-equalizing Annealing" and "Stress-relief Annealing."

B

BRINELL HARDNESS NUMBER (BHN)—A number, expressed in kilograms per square millimeter, calculated from the area of the impression surface in a specimen caused by the penetration of a 10-millimeter diameter standard hard steel ball under a load of 3000 kg. acting for 5 to 30 seconds, or of 500 kilograms acting for 30 to 60 seconds. The heavier load is used for harder materials. For very hard materials a carbide ball is substituted for the steel ball.

BTU.—British Thermal Unit. The quantity of heat necessary to raise the temperature of one pound of water by 1° F.

C

CHARPY IMPACT (See Impact Strength)—The energy, in foot-pounds, absorbed in fracturing a notched specimen that has been prepared according to definite standard dimensions and is supported in a standard manner at both ends. Several forms of notch and sizes of specimen are used, and both notch and size must be specified in a given case, since variations in either will result in different unit values for the same material.

COEFFICIENT—A number expressing the ratio of change under certain specified conditions such as temperature, length, volume, etc.

COEFFICIENT OF ELECTRICAL RESISTIVITY—The fractional change in electrical resistivity per degree of temperature change, expressed in ohms per circular mil foot or microhm centimeters. It is frequently the average change in resistivity over the range 20° to 100° C. (68° to 212° F.) divided by the resistivity at 20° C. and by 80 (the temperature differential).

COEFFICIENT OF THERMAL EXPANSION—The fractional change in length of a material per degree of temperature change as compared to the length at the reference temperature, usually 0° C. (32° F.). It is expressed as inch per inch per deg. C. or F.

COMPRESSIVE YIELD STRENGTH—The stress in compression (pushed together) at which a material exhibits a specified limiting set, commonly taken by the offset method as 0.20 per cent of the specimen's original length. Expressed as psi.

CORROSION FATIGUE—The endurance limit of a material when in contact with a specified corrosive medium. See "Endurance Limit."

CREEP STRENGTH—The rate of continuous deformation under stress at a specified temperature. Generally expressed as psi. to produce 1 per cent elongation in 10,000 hours at the temperature indicated.

D

DENSITY—The weight of a metal, usually expressed in pounds per cubic inch or grams per cubic centimeter. Do not confuse with "Specific Gravity."

DUCTILITY—The property which permits deformation under tension without rupture. Values for "Elongation" and "Reduction of Area" generally are taken as the measure of ductility.

E

ELASTIC LIMIT—The maximum stress, in pounds per square inch, at which a material exhibits a slight deviation from the straight line (proportional limit) but will return to the original length upon release of load.

ELECTRICAL RESISTIVITY—The resistance of a material to passage through it of an electric current. Expressed as ohms (units of resistance) per mil ft. or as microhms (millionth of an ohm) per centimeter cube at a specified temperature.

ELONGATION—The amount of permanent stretch, after fracture in tension, expressed as percentage of the specimen's original length.

ENDURANCE LIMIT—A measure of the limit of safe loading for materials to be used under repeated, cyclic changes of stress. Expressed as psi. Properly, it is the maximum stress to which a metal can be subjected for indefinitely long periods without damage. In practice, values are taken at a specified number of cyclic changes of stress (see "Fatigue Strength").

F

FATIGUE STRENGTH—Usually synonymous with Endurance Limit but properly the stress to which a metal can be subjected for a specified number of cyclic changes of stress. Expressed as psi.

H

HARDNESS—Resistance to plastic deformation by indentation, penetration, scratching or bending. Expressed by means of "Brinell," "Rockwell," "Scleroscope" or "Vickers" Hardness Numbers depending upon the testing machine used.

HEAT TRANSFER—The passage of heat from a hot to a cold body, by conduction through intervening layers of solid, liquid or gas. Overall rate of heat transfer through a given system of obstructions is expressed in units of heat, per unit of area of obstructions exposed, per unit of time, per unit of difference in temperature between the hot and cold bodies (Btu. per sq. ft. per hr. per ° F.). The amount of heat transferred is measured in units of heat per unit of time (BTU per hr.). See "Thermal Conductivity."

HEAT-TREATING—An operation or combination of operations involving the heating and cooling of a metal to obtain certain desirable conditions or properties, and not for the sole purpose of mechanical working.

DEFINITIONS AND GLOSSARY—Continued

I

IMPACT STRENGTH—A measure of toughness. The stress to fracture a notched specimen with a single blow. Expressed in foot-pounds of energy absorbed. Designated as "Charpy" or "Izod" Impact Strength depending on the testing machine used.

IPY.—Inches penetration per year. The average depth to which uniform corrosion would penetrate if a specimen were exposed to corrosion, on one side only, 24 hours per day for 365 days. Calculated from weight loss. See "Mdd."

IZOD IMPACT (See Impact Strength)—The energy, in foot-pounds, absorbed in fracturing a notched specimen which has been prepared to definite standard dimensions and supported in a standard manner as a cantilever. Several forms of notch and sizes of specimen are used and both must be specified in a given case since they yield different values for the same material.

J

JOHNSON'S LIMIT—The stress, expressed in pounds per square inch, at which the rate of deformation is 50 per cent greater than it is over the linear portion of the stress-strain curve.

M

MAGNETIC TRANSFORMATION POINT—The temperature at which a normally magnetic material becomes substantially non-magnetic. Also called the Curie Point.

MDD.—Milligrams per square decimeter per day. The term for expressing average loss in weight from corrosion. A "day" is 24 hours. See "Ipy."

MODULUS OF ELASTICITY—The ratio, within the elastic limit, of stress to the corresponding strain. Expressed in psi. for four types of stress: tension, torsion, compression, shear.

P

POISSON'S RATIO—The ratio of the transverse strain to the longitudinal strain within the elastic limit determined by direct measurement. An approximate relationship is:

$$\text{Poisson's Ratio} = \frac{\text{Tensile Modulus}}{2 \times \text{Torsional Modulus}} - 1.$$

PROOF STRESS—The stress that may be applied without leaving permanent elongation of more than 0.0001 inch per inch of the specimen's original length after removal of that stress. Expressed in psi.

PROPORTIONAL LIMIT—The maximum, in psi., at which strain or deformation is directly proportional to stress.

PSI.—Pounds per square inch.

R

REDUCTION OF AREA—The difference between the original cross-sectional area of a specimen and the least cross-sectional area after rupture in tensile tests. Expressed in percentage of the original cross-sectional area.

S

SCLEROSCOPE HARDNESS NUMBER—A number determined by the height of rebound of a diamond-tipped hammer dropped from a fixed height.

SHEAR STRENGTH—The stress required to produce fracture when impressed vertically upon the cross-section of a material. Expressed in psi.

SPECIFIC GRAVITY—The ratio of the weight of a solid or liquid to the weight of an equal volume of water.

SPECIFIC HEAT—The amount of heat necessary to raise the temperature of a substance by 1° F. Expressed as Btu. per pound per ° F. or as calories per gram.

STRESS-EQUALIZING ANNEALING—Heating and cooling to homogenize stresses so as to afford the best possible combination of ductility and strength.

STRESS-RELIEF ANNEALING—Heating and cooling to effect partial softening. Also called Temper Annealing.

T

TENSILE STRENGTH—The stress required to rupture in tension (pull). Expressed in psi. Also called Breaking Strength, Ultimate Strength, and Ultimate Tensile Strength.

TENSION IMPACT—The energy, in foot-pounds, absorbed in rupturing a specially prepared specimen by allowing a moving weight to strike the specimen in such a manner that the specimen is parted suddenly in tension.

THERMAL CONDUCTIVITY—The measure of the heat a substance will conduct through itself. Expressed in Btu., per hour, per sq. ft. of exposed surface, per ° F. difference between the adjacent hot and cold bodies, per inch thickness (or the metric equivalents). Do not confuse with "Heat Transfer."

THERMAL EXPANSION—The increase in length caused by heating. Expressed in inches of increase, per inch of original length, per degrees of temperature.

TORSIONAL PROPERTIES—Figures expressing values of a material when stressed by twisting.

TORSION IMPACT—The energy, in foot-pounds, absorbed in rupturing a specially prepared specimen by allowing a moving weight to strike the specimen in such a manner that the specimen is ruptured suddenly by torsion.

TOUGHNESS—Resistance to impact. A combination of strength and ductility.

Y

YIELD POINT—The stress necessary to produce an elongation under load of 0.50 per cent of the specimen's original length. Expressed as psi. Do not confuse with "Yield Strength."

YIELD STRENGTH—The stress at which a material exhibits a specified limiting set, commonly taken by the offset method as 0.20 per cent of the specimen's original length. Expressed as psi.

DATA

NOMINAL COMPOSITION OF COMMONLY USED METALS AND ALLOYS

Per Cent of Alloying Elements

ALUMINUM ALLOYS

Aluminum Alloys	Copper	Silicon	Manganese	Magnesium	Zinc	Nickel	Chromium	Lead	Bismuth
2S ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3S.....	.....	.....	1.2	.....	.....	.....	.....	.....	.....
4S.....	.....	.....	1.2	1.0	.....	.....	.....	.....	.....
11S.....	5.5	.....	.....	.....	.....	.....	.....	0.5	0.5
17S ²	4.0	.....	0.5	0.5	.....	.....	.....	.....	.....
A17S.....	2.5	.....	.....	0.3	.....	.....	.....	.....	.....
24S ¹	4.5	.....	0.6	1.5	.....	.....	.....	.....	.....
43S.....	.....	5.0	.....	.....	.....	.....	.....	.....	.....
A51S.....	.....	1.0	.....	0.6	.....	.....	0.25	.....	.....
52S.....	.....	.....	.....	2.5	.....	.....	0.25	.....	.....
61S.....	0.25	0.6	.....	1.0	.....	.....	0.25	.....	.....
63S.....	.....	0.4	.....	0.7	.....	.....	.....	.....	.....
75S.....	1.6	.....	.....	2.5	5.6	.....	0.3	.....	.....

Aluminum and Normal Impurities Constitute Remainder.

¹99% minimum Aluminum.

²Heat-treatment symbols have been omitted since composition does not vary for different heat-treatment practices.

COPPER ALLOYS

Copper Alloys	Copper	Zinc	Tin	Lead	Nickel	Aluminum	Silicon	Manganese	Others
Electrolytic Tough Pitch									
Copper—100.....	99.9	.....	.....	.....	.....	.....	.....	.....	.....
Deoxidized Copper—939.....	99.9	.....	.....	.....	.....	.....	.....	.....	Phosphorus 0.02
Commercial Bronze—14.....	90.00	10.00	.....	.....	.....	.....	.....	.....	.....
Red Brass—24.....	85.00	15.00	.....	.....	.....	.....	.....	.....	.....
Yellow Brass—59.....	65.00	35.00	.....	.....	.....	.....	.....	.....	.....
Yellow Brass—61.....	63.00	37.00	.....	.....	.....	.....	.....	.....	.....
Muntz Metal—66.....	60.00	40.00	.....	.....	.....	.....	.....	.....	.....
Leaded Commercial									
Bronze—202.....	88.50	10.00	1.50	.....	.....	.....	.....	.....	.....
Rule Brass—238.....	62.50	35.00	.....	2.50	.....	.....	.....	.....	.....
Free Cutting Yellow									
Brass—271.....	62.00	35.00	.....	3.00	.....	.....	.....	.....	.....
Clock Brass—243.....	61.50	37.00	.....	1.50	.....	.....	.....	.....	.....
Naval Brass—452.....	60.00	39.25	0.75	.....	.....	.....	.....	.....	.....
Tobin Bronze*.....	60.00	39.25	0.75	.....	.....	.....	.....	.....	.....
Phosphorus Bronze, 4%									Phosphorus 0.25
(Grade A)—903.....	95.75	.....	4.00	.....	.....	.....	.....	.....	.....
Phosphorus Bronze, 5%									.....
(Grade A)—351.....	95.00	.....	5.00	.....	.....	.....	.....	.....	.....
Special Free Cutting Phosphorus Bronze—610.....	88.00	4.00	4.00	4.00	.....	.....	.....	.....	.....
Everdur*—1010.....	95.80	.....	.....	.....	.....	.....	3.10	1.10	.....
Nickel Silver 18%—719.....	65.00	17.00	.....	.....	18.00	.....	.....	.....	.....
Nickel Silver 18%—724.....	55.00	27.00	.....	.....	18.00	.....	.....	.....	.....
Ambrac*—850.....	75.00	5.00	.....	.....	20.00	.....	.....	.....	.....
Extruded Leaded Nickel									
Silver, 10%—823.....	46.50	40.75	.....	2.75	10.00	.....	.....	.....	.....

*Trade-mark Reg. U. S. Pat. Off.

DATA

NOMINAL COMPOSITION OF COMMONLY USED METALS AND ALLOYS

Continued NICKEL ALLOYS

Nickel Alloys	Nickel*	Copper	Iron	Man- ganese	Silicon	Carbon	Sulphur	Chro- mium	Alumi- num
Monel**	67.	30.	1.4	1.	.1	.15	.01	....	....
"R"*** Monel	67.	30.	1.4	1.	.05	.15	.035	....	....
"K"*** Monel	66.	29.	.9	.75	.5	.15	.005	....	2.75
"KR"*** Monel	66.	29.	.9	.75	.5	.28	.005	....	2.75
"A"*** Nickel	99.4	.1	.15	.25	.05	.06	.005	....	....
"L"*** Nickel	99.4	.05	.1	.2	.15	.01	.005	....	....
Dura** Nickel	93.7	.05	.35	.3	.5	.17	.005	....	4.4
Inconel**	78.	.2	7.	.25	.25	.08	.007	14.00	....

*Nickel plus cobalt.

**Trade-marks.

STAINLESS STEEL ALLOYS

Type No.	Carbon	Man- ganese Max.	Silicon Max.	Chromium	Nickel	Phos- phorus	Sulphur	Other Elements
301	Over .08/.20	2.00	1.00	16.00/18.00	6.00/ 8.00	.04	.04	....
302	Over .08/.20	2.00	1.00	17.00/19.00	8.00/10.00	.04	.04	....
302B	Over .08/.20	2.00	2.00/3.00	17.00/19.00	8.00/10.00	.04	.04	....
303	.15 Max.	2.00	1.00	17.00/19.00	8.00/10.00	*	*	*
304	.08 Max.	2.00	1.00	18.00/20.00	8.00/11.00	.04	.04	....
305	.12 Max.	2.00	1.00	17.00/19.00	10.00/13.00	.04	.04	....
308	.08 Max.	2.00	1.00	19.00/21.00	10.00/12.00	.04	.04	....
309	.20 Max.	2.00	1.00	22.00/24.00	12.00/15.00	.04	.04	....
310	.25 Max.	2.00	1.50	24.00/26.00	19.00/22.00	.04	.04	....
314	.25 Max.	2.00	1.50/3.00	23.00/26.00	19.00/22.00	.04	.04	....
316	.10 Max.	2.00	1.00	16.00/18.00	10.00/14.00	.04	.04	MO—2.00/3.00
317	.10 Max.	2.00	1.00	18.00/20.00	11.00/14.00	.04	.04	MO—3.00/4.00
318	.07 Max.	2.00	1.00	17.00/19.00	12.00/14.00	.04	.04	MO—1.75/2.50 CB—10 x C Min. TI—5 x C Min. CB—10 x C Min.
321	.08 Max.	2.00	1.00	17.00/19.00	8.00/11.00	.04	.04	....
347	.08 Max.	2.00	1.00	17.00/19.00	9.00/12.00	.04	.04	....
403	.15 Max.	1.00	.50	11.50/13.00	....	.04	.04	....
405	.08 Max.	1.00	1.00	11.50/13.50	....	.04	.04	Alum.—.10/.30
406	.15 Max.	1.00	1.00	12.00/14.00	....	.04	.04	Alum.—3.50/4.50
410	.15 Max.	1.00	1.00	11.50/13.50	....	.04	.04	....
414	.15 Max.	1.00	1.00	11.50/13.50	1.25/ 2.50	.04	.04	....
416	.15 Max.	1.25	1.00	12.00/14.00	....	*	*	*
420	Over .15	1.00	1.00	12.00/14.00	....	.04	.04	....
430	.12 Max.	1.00	1.00	14.00/18.00	....	.04	.04	....
430F	.12 Max.	1.25	1.00	14.00/18.00	....	*	*	*
431	.20 Max.	1.00	1.00	15.00/17.00	1.25/ 2.50	.04	.04	....
440A	.60/ .75	1.00	1.00	16.00/18.00	....	.04	.04	MO—.75 Max.
440B	.75/ .95	1.00	1.00	16.00/18.00	....	.04	.04	MO—.75 Max.
440C	.95/1.20	1.00	1.00	16.00/18.00	....	.04	.04	MO—.75 Max.
442	.25 Max.	1.00	1.00	18.00/23.00	....	.04	.04	....
446	.35 Max.	1.00	1.00	23.00/27.00	....	.04	.04	N—.25

*P or S or Se—Min. .07. ZR or MO—Max. .60.

NOTE: Phosphorus .04 Max. and Sulphur .03 Max. on all types except 303, 416 and 430F.

Values shown are nominal and are not to be used for specification purposes but should be considered only as a general guide.

DATA

MECHANICAL PROPERTIES

Material	Form and Condition	Yield Strength (0.20% offset) 1000 psi.	Tensile Strength 1000 psi.	Elongation in 2 in. per cent	Hardness Brinell	Tensile Modulus 1,000,000 psi.
Alcoa 17S.....	Annealed.....	10	26	20	45	10.3
	Annealed ⁶	37	60	20	100	
	Annealed ⁷	47	65	13	101	
Beryllium Copper.....	Annealed.....	30	70	42	125	
	Cold-rolled ^{1/2} ...	97	190	2	340	
Carbon Steel SAE 1020...	Annealed.....	40	60	35	130	
	Hardened ⁴	62	90	22	175	
Copper.....	Annealed.....	10	32	40	30	15.8
	Cold-drawn.....	40	45	20	105	
	Cold-rolled ⁴ ...	48	52	5	120	
Cupro-Nickel 70-30.....	Annealed.....	20	50	45	80	
	Cold-drawn.....	50	70	20	150	
"D" Nickel.....	Annealed.....	35	75	40	140	30
	Hot-rolled.....	50	90	35	150	
	Cold-drawn.....	80	100	25	190	
Duranickel.....	Hot-rolled.....	50	105	35	180	30
	Hot-rolled ¹	130	170	15	320	
	Cold-drawn.....	90	120	25	220	
	Cold-drawn ¹	135	175	15	340	
Inconel (wrought).....	Annealed.....	35	85	45	150	31
	Hot-rolled.....	60	100	35	180	
	Cold-drawn.....	90	115	20	200	
Inconel X.....	Annealed.....	55	120	50	175	31
	Hot-rolled ⁸	130	188	23	355	
"K" Monel.....	Hot-rolled.....	45	100	40	160	26
	Hot-rolled ¹	110	150	25	280	
	Cold-drawn.....	85	115	25	210	
"KR" Monel.....	Cold-drawn.....	115	155	20	290	
	Cold-drawn ¹					
Monel (wrought).....	Annealed.....	35	75	40	125	26
	Hot-rolled.....	50	90	35	150	
	Cold-drawn.....	80	100	25	190	
Nickel (wrought).....	Annealed.....	20	70	40	100	30
	Hot-rolled.....	25	75	40	110	
	Cold-drawn.....	70	95	25	170	
Nickel Silver 18% (wrought).....	Annealed.....	20	58	40	90	18.5
	Cold-drawn ²		105			
"R" Monel.....	Hot-rolled.....	45	85	35	145	26
	Cold-drawn.....	75	90	25	180	
Stainless Steel Type 304..	Annealed.....	30	85	55	160	29
	Cold-rolled.....	160	185	8	400	
Yellow Brass (high brass)..	Annealed.....	18	45	60	60	
	Cold-rolled ²	75	90	5	180	

¹Heat-treated.

²Hard temper.

³Water-quenched, drawn at 200° F.

⁴Water-quenched, drawn at 1000° F.

⁵Annealed.

⁶Solution heat-treated and aged.

⁷Solution heat-treated, aged and cold-worked.

⁸Direct Aged, 1300° F., 20 hrs.

D A T A

COMPARATIVE PHYSICAL AND MECHANICAL PROPERTIES OF METALS

PHYSICAL CONSTANTS

Material	Density lb. per cu. in.	Melting Range ° F.	Mean Specific Heat (32°-212° F.) Btu./lb./°F.	Mean Coefficient of Thermal Expansion (32°-212° F.) in./in./°F.	Electrical Resistivity (68° F.) ohms/cir.mil.ft.	Thermal Conductivity (32°-212° F.) Btu./sq.ft./hr./°F./in.
Aluminum (2S).....	0.098	1190-1215	.23	.0000129	17.6	1540
Aluminum (17S).....	0.101	995-1190	.23	.000013	34.6	840
Beryllium Copper.....	0.297	1750	.1	.0000092	50	650
Brass (Yellow).....	0.306	1710	.095	.0000112	40	830
Carbon Steel (SAE 1020).....	0.284	2760	.107	.0000067	60	460
Copper.....	0.322	1980	.092	.0000098	10.4	2680
Cupro-Nickel (70-30).....	0.323	2235	.09	.0000087	220	200
"D" Nickel.....	0.317	2600	.13	.0000074	110	335
Duranickel.....	0.316	2615-2635	.13	.0000072	100	420
Inconel.....	0.307	2540-2600	.109	.0000064	590	104
Inconel X.....	0.300	2540-2600	.11	.0000076	732	104
"K" Monel.....	0.306	2400-2460	.127	.0000078	350	130
"KR" Monel.....	0.306	2400-2460	.127	.0000078	350	130
Lead.....	0.410	620	.03	.0000164	124	240
Monel.....	0.319	2370-2460	.127	.0000078	290	180
Nickel.....	0.321	2615-2635	.13	.0000072	57	420
Nickel Silver (18%).....	0.316	2030		.00001	175	230
"R" Monel.....	0.319	2370-2460	.13	.0000078	290	180
Stainless Steel Type 304.....	0.29	2550-2590	.12	.0000096	430	105
Stainless Steel Type 310.....	0.29	2550-2600	.12	.0000085	480	105
Stainless Steel Type 316.....	0.29	2500-2550	.12	.0000084	440	105
Stainless Steel Type 330.....	0.28	2550-2650	.11	.0000071	600	105
Stainless Steel Type 430.....	0.28	2650-2700	.11	.0000060	360	155
Wrought Iron.....	0.278	2700-2750	.11	.0000067	87	
Zinc.....	0.258	786	.094	see* below	36	

*Longitudinal test 0.000018; transverse test 0.000013.

WEIGHT OF METALS AND ALLOYS

Aluminum—Wrought (2S)	— .0979 lbs. per Cubic Inch
" —Cast	— .0924 " " " "
Brass	— .300 " " " "
Cast Iron	— .260 " " " "
Copper	— .318 " " " "
Inconel	— .319 " " " "
Lead	— .411 " " " "
Magnesium	— .0629 " " " "
Monel	— .318 " " " "
Nickel	— .319 " " " "
Steel	— .293 " " " "
Zinc	— .2598 " " " "

The above tables are approximate and variations must be expected in practice.

DATA

COMPARISON OF GAUGES

Expressed in Decimals of an Inch

Gauge No.	American or Brown & Sharpe	Birmingham or Stubs	Wash. & Moen	Imperial S. W. G.	London or Old English	United States Standard	American Standard* Preferred Thickness
0000000	.....	.....	.490	.500	.....	.500	.....
000000	.5800	.....	.460	.464	.....	.46875	.....
00000	.5165	.....	.430	.432	.....	.4375	.....
0000	.4600	.454	.3938	.400	.454	.40625	.....
000	.4096	.425	.3625	.372	.425	.375	.....
00	.3648	.380	.3310	.348	.38	.34375	.....
0	.3249	.340	.3065	.324	.34	.3125	.....
1	.2893	.300	.2830	.300	.3	.28125	.....
2	.2576	.284	.2625	.276	.284	.265625	.....
3	.2294	.259	.2437	.252	.259	.25	.224
4	.2043	.238	.2253	.232	.238	.234375	.200
5	.1819	.220	.2070	.212	.22	.21875	.180
6	.1620	.203	.1920	.192	.203	.203125	.160
7	.1443	.180	.1770	.176	.18	.1875	.140
8	.1285	.165	.1620	.160	.165	.171875	.125
9	.1144	.148	.1483	.144	.148	.15625	.112
10	.1019	.134	.1350	.128	.134	.140625	.100
11	.09074	.120	.1205	.116	.12	.125	.090
12	.08081	.109	.1055	.104	.109	.109375	.080
13	.07196	.095	.0915	.092	.095	.09375	.071
14	.06408	.083	.0800	.080	.083	.078125	.063
15	.05707	.072	.0720	.072	.072	.0703125	.056
16	.05082	.065	.0625	.064	.065	.0625	.050
17	.04526	.058	.0540	.056	.058	.05625	.045
18	.04030	.049	.0475	.048	.049	.05	.040
19	.03589	.042	.0410	.040	.040	.04375	.036
20	.03196	.035	.0348	.036	.035	.0375	.032
21	.02846	.032	.03175	.032	.0315	.034375	.028
22	.02535	.028	.0286	.028	.0295	.03125	.025
23	.02257	.025	.0258	.024	.027	.028125	.022
24	.02010	.022	.0230	.022	.025	.025	.020
25	.01790	.020	.0204	.020	.023	.021875	.018
26	.01594	.018	.0181	.018	.0205	.01875	.016
27	.01420	.016	.0173	.0164	.0187	.0171875	.014
28	.01264	.014	.0162	.0148	.0165	.015625	.012
29	.01126	.013	.0150	.0136	.0155	.0140625	.011
30	.01003	.012	.0140	.0124	.01372	.0125	.010
31	.008928	.010	.0132	.0116	.0122	.0109375	.009
32	.007950	.009	.0128	.0108	.0112	.01015625	.008
33	.007080	.008	.0118	.0100	.0102	.009375	.007
34	.006305	.007	.0104	.0092	.0095	.00859375	.006
35	.005615	.005	.0095	.0084	.009	.0078125	.....
36	.005000	.004	.0090	.0076	.0075	.00703125	.....
37	.004453	.....	.0085	.0068	.0065	.006640625	.....
38	.003965	.....	.008	.0060	.0057	.00625	.....
39	.003531	.....	.0075	.0052	.005	.....	.....
40	.003145	.....	.007	.0048	.0045	.....	.....

*These thicknesses are intended to express the desired thickness in decimals. They have no relation to gauge numbers.

D A T A

DECIMAL AND METRIC EQUIVALENTS OF FRACTIONAL PARTS OF AN INCH

FRACTION	DECIMAL EQUIVALENT	MILLIMETERS	FRACTION	DECIMAL EQUIVALENT	MILLIMETERS
$\frac{1}{64}$ "	.0156	0.3969	$\frac{33}{64}$ "	.5156	13.0969
$\frac{1}{32}$ "	.0312	0.7937	$\frac{17}{32}$ "	.5312	13.4937
$\frac{3}{64}$ "	.0468	1.1906	$\frac{35}{64}$ "	.5468	13.8906
$\frac{1}{16}$ "	.0625	1.5875	$\frac{9}{16}$ "	.5625	14.2875
$\frac{5}{64}$ "	.0781	1.9844	$\frac{37}{64}$ "	.5781	14.6844
$\frac{3}{32}$ "	.0937	2.3812	$\frac{19}{32}$ "	.5937	15.0812
$\frac{7}{64}$ "	.1093	2.7781	$\frac{39}{64}$ "	.6093	15.4781
$\frac{1}{8}$ "	.1250	3.1750	$\frac{5}{8}$ "	.6250	15.8750
$\frac{9}{64}$ "	.1406	3.5719	$\frac{41}{64}$ "	.6406	16.2719
$\frac{5}{32}$ "	.1562	3.9687	$\frac{21}{32}$ "	.6562	16.6687
$\frac{11}{64}$ "	.1718	4.3656	$\frac{43}{64}$ "	.6718	17.0656
$\frac{3}{16}$ "	.1875	4.7625	$\frac{11}{16}$ "	.6875	17.4625
$\frac{13}{64}$ "	.2031	5.1594	$\frac{45}{64}$ "	.7031	17.8594
$\frac{7}{32}$ "	.2187	5.5562	$\frac{23}{32}$ "	.7187	18.2562
$\frac{15}{64}$ "	.2343	5.9531	$\frac{47}{64}$ "	.7343	18.6531
$\frac{1}{4}$ "	.2500	6.3500	$\frac{3}{4}$ "	.7500	19.0500
$\frac{17}{64}$ "	.2656	6.7469	$\frac{49}{64}$ "	.7656	19.4469
$\frac{9}{32}$ "	.2812	7.1437	$\frac{25}{32}$ "	.7812	19.8437
$\frac{19}{64}$ "	.2968	7.5406	$\frac{51}{64}$ "	.7968	20.2406
$\frac{5}{16}$ "	.3125	7.9375	$\frac{13}{16}$ "	.8125	20.6375
$\frac{21}{64}$ "	.3281	8.3344	$\frac{53}{64}$ "	.8281	21.0344
$\frac{11}{32}$ "	.3437	8.7312	$\frac{27}{32}$ "	.8437	21.4312
$\frac{23}{64}$ "	.3593	9.1281	$\frac{55}{64}$ "	.8593	21.8281
$\frac{3}{8}$ "	.3750	9.5250	$\frac{7}{8}$ "	.8750	22.2250
$\frac{25}{64}$ "	.3906	9.9219	$\frac{57}{64}$ "	.8906	22.6219
$\frac{13}{32}$ "	.4062	10.3187	$\frac{29}{32}$ "	.9062	23.0187
$\frac{27}{64}$ "	.4218	10.7156	$\frac{59}{64}$ "	.9218	23.4156
$\frac{7}{16}$ "	.4375	11.1125	$\frac{15}{16}$ "	.9375	23.8125
$\frac{29}{64}$ "	.4531	11.5094	$\frac{61}{64}$ "	.9531	24.2094
$\frac{15}{32}$ "	.4687	11.9062	$\frac{31}{32}$ "	.9687	24.6062
$\frac{31}{64}$ "	.4843	12.3031	$\frac{63}{64}$ "	.9843	25.0031
$\frac{1}{2}$ "	.5000	12.7000	1 "	1.0000	25.4001

CONVERSION FACTORS FOR COMPUTING WEIGHTS OF METALS

For Wrought Aluminum Alloys and Other Metals

BASED ON BRASS—DENSITY 8.46 WEIGHT .300 LBS. PER CUBIC INCH		BASED ON PURE ALUMINUM (2S)—DENSITY 2.71 WEIGHT .0979 LBS. PER CUBIC INCH	
Weight of Brass Times	Weight of	Weight of 2S Aluminum Times	Weight of
1.039 =	90% Commercial Bronze	1.01 =	3S Aluminum
1.052 =	Copper	1.03 =	17S "
1.023 =	80% Low Brass	1.03 =	25S "
1.03 =	85% Low Brass	0.99 =	51S "
1.05 =	Monel	3.06 =	Brass
1.06 =	Nickel	3.20 =	Copper
1.033 =	18% Nickel Silver	3.20 =	Monel
1.046 =	5% Phosphor Bronze	3.23 =	Nickel
0.994 =	Tobin Bronze	2.88 =	Steel
1.05 =	Inconel	2.60 =	Zinc
1.045 =	10% Clad Nickel-Clad Steel		
1.00 =	Muntz Metal		
1.00 =	Architectural Bronze		

DATA

MISCELLANEOUS CONVERSION FACTORS

Metric and English

TO CHANGE FROM	TO	MULTIPLY BY
Feet	Meters	0.3048
Miles	Kilometers	1.60935
Meters	Inches	39.37
Meters	Feet	3.28083
Kilometers	Miles	0.62137
Square feet	Square meters	0.0929
Square yards	Square meters	0.8361
Square meters	Square yards	1.196
Cubic yards	Cubic meters	0.7646
Cubic meters	Cubic yards	1.308
Fluid ounces	Cubic centimeters	29.574
Quarts	Liters	0.9464
Cubic centimeters	Fluid ounces	0.0344
Liters	Quarts	1.0567
Grains	Milligrams	64.7989
Pounds (avoirdupois)	Kilograms	0.4536
Ounces (apothecary)	Grams	31.1035
Pounds (apothecary)	Kilograms	0.3732
Grams	Grains	15.4324
Kilograms	Pounds	2.2046
Kilowatts	Horse power	1.34
Horse power	Kilowatts	0.746
B. T. U.	Calories	252.0
Calories	B. T. U. . . . .	.003968
Pounds	Grams	453.6
Ounces (avoirdupois)	Grams	28.35
Inches	Centimeters	2.54
Inches	Decimeters	0.254
Feet	Centimeters	30.48
Feet	Decimeters	3.048
Square inches	Square centimeters	6.452
Square inches	Square decimeters	0.0645
Square feet	Square centimeters	929.0
Square feet	Square decimeters	9.29
Cubic inches	Cubic centimeters	16.387
Ounces per square foot	Milligrams per square decimeter	3050.
Grams per square inch per hour	Milligrams per square decimeter per day	360000.0
Pounds per square foot per year	Milligrams per square decimeter per day	133.8
Grams	Pounds	0.002205
Grams	Ounces (avoirdupois)	0.03527
Centimeters	Inches	0.3937
Decimeters	Inches	3.937
Centimeters	Feet	0.03281
Decimeters	Feet	0.3281
Square centimeters	Square inches	0.1550
Square decimeters	Square inches	15.50
Square centimeters	Square feet	0.001076
Square decimeters	Square feet	0.1076
Cubic centimeters	Cubic inches	0.06102
Milligrams per square decimeter	Ounces per square foot	0.0003279
Milligrams per square decimeter per day	Grams per square inch per hour	0.00000278
Milligrams per square decimeter per day	Pounds per square foot per year	0.00747

D A T A

COMPARATIVE WEIGHTS OF SHEET METAL

BY GAUGE NUMBERS

In Pounds Per Square Foot

THICKNESS			METALS				
B. & S. Gauge No.	Nearest Fraction of Inch	Decimal Equiv. in Inches	2S ALUMI- NUM	BRASS	COM- MERCIAL BRONZE	COPPER	18% NICKEL SILVER
40	....	.0031	.0442	.1366	.1420	.1437	.1411
39	....	.0035	.0497	.1542	.1603	.1623	.1593
38	....	.0040	.0558	.1763	.1833	.1855	.1820
37	....	.0045	.0627	.1983	.2062	.2087	.2048
36	....	.0050	.0704	.2203	.2291	.2318	.2275
35	....	.0056	.0790	.2468	.2566	.2597	.2548
34	....	.0063	.0888	.2776	.2887	.2921	.2867
33	....	.0074	.100	.3129	.3254	.3292	.3231
32	....	.0080	.113	.3525	.3666	.3709	.3640
31	....	.0089	.126	.3922	.4078	.4127	.4050
30	....	.0100	.141	.4406	.4582	.4637	.4550
29	....	.0113	.159	.4979	.5178	.5240	.5142
28	....	.0126	.178	.5552	.5774	.5842	.5734
27	....	.0142	.200	.6257	.6517	.6584	.6462
26	$\frac{1}{64}$ "	.0159	.225	.7006	.7286	.7373	.7235
25	....	.0179	.252	.7887	.8202	.8300	.8145
24	....	.0201	.283	.8857	.9211	.9320	.9146
23	....	.0226	.318	.9958	1.035	1.048	1.028
22	....	.0254	.357	1.119	1.163	1.178	1.156
21	....	.0285	.401	1.256	1.306	1.321	1.297
20	$\frac{1}{32}$ "	.0320	.450	1.410	1.466	1.484	1.456
19	....	.0359	.506	1.582	1.645	1.665	1.634
18	....	.0403	.568	1.776	1.847	1.869	1.834
17	$\frac{3}{64}$ "	.0453	.638	1.996	2.075	2.100	2.061
16	....	.0508	.716	2.238	2.327	2.355	2.312
15	....	.0571	.804	2.516	2.616	2.648	2.598
14	$\frac{1}{16}$ " +	.0641	.903	2.825	2.938	2.972	2.917
13	....	.0720	1.01	3.173	3.299	3.338	3.276
12	$\frac{3}{64}$ " +	.0808	1.14	3.560	3.702	3.747	3.677
11	$\frac{3}{32}$ " —	.0907	1.28	3.997	4.156	4.206	4.127
10	....	.1019	1.44	4.490	4.669	4.725	4.637
9	$\frac{7}{64}$ " +	.1144	1.61	5.041	5.242	5.304	5.206
8	$\frac{1}{8}$ " +	.1285	1.81	5.662	5.888	5.958	5.847
7	$\frac{3}{64}$ " +	.1443	2.03	6.358	6.612	6.691	6.566
6	$\frac{5}{32}$ " +	.1620	2.28	7.138	7.423	7.512	7.372
5	$\frac{3}{16}$ " —	.1819	2.56	8.015	8.335	8.434	8.277
4	$\frac{1}{4}$ "	.2043	2.88	9.002	9.362	9.473	9.297
3	....	.2294	3.23	10.11	10.51	10.64	10.44
2	$\frac{1}{4}$ " +	.2576	3.63	11.35	11.80	11.94	11.72
1	$\frac{3}{16}$ " +	.2893	4.08	12.75	13.30	13.41	13.16
0	$\frac{3}{16}$ " +	.3249	4.58	14.32	14.89	15.06	14.78
2/0	....	.3648	5.14	16.07	16.71	16.92	16.60
3/0	....	.4096	5.77	18.05	18.77	18.99	18.64
4/0	$\frac{1}{2}$ " +	.4600	6.48	20.27	21.08	21.33	20.93

Variations from these weights must be expected in practice.

DATA

COMPARATIVE WEIGHTS OF SHEET METAL—Continued

BY GAUGE NUMBERS—Continued

In Pounds Per Square Foot

COPPER (Rolled to Weight)				MONEL, NICKEL AND STAINLESS				ZINC		
Weight, Ounces	Sq. Ft. Pounds	Thickness in Inches	Nearest Fraction of Inch	Thickness		MONEL & NICKEL Weight Per Sq. Ft.	STAIN- LESS Weight Per Sq. Ft.	Zinc Gauge No.	Decimal Equiv.	Weight Per Sq. Ft.
				U.S. Std. Gauge No.	Decimal Equiv.					
2	1/8	.0027	....	26	.0187	.827	.787	3	.006	.22
4	1/4	.0054	....	25	.0218	.965	.918	4	.008	.30
6	3/8	.0081	....	24	.0250	1.15	1.05	5	.010	.37
8	1/2	.0108	....	23	.0281	1.29	1.18	6	.012	.45
10	5/8	.0135	1/64"	22	.0312	1.42	1.31	7	.014	.52
12	3/4	.0162	1/64"	21	.0343	1.56	1.44	8	.016	.60
14	7/8	.0189	1/64"	20	.0375	1.70	1.57	9	.018	.67
16	1	.0216	1/64"	19	.0437	1.98	1.83	10	.020	.75
18	1 1/8	.0243	1/32"	18	.0500	2.30	2.10	11	.024	.90
20	1 1/4	.0270	1/32"	17	.0562	2.57	2.36	12	.028	1.05
24	1 1/2	.0323	1/32"	16	.0625	2.85	2.62	13	.032	1.20
28	1 3/4	.0377	1/32"	15	.0703	3.22	2.95	14	.036	1.35
32	2	.0431	3/64"	14	.0781	3.58	3.28	15	.040	1.50
36	2 1/4	.0485	3/64"	13	.0937	4.27	3.93	16	.045	1.68
40	2 1/2	.0539	3/64"	12	.1093	5.01	4.59	17	.050	1.87
44	2 3/4	.0593	1/16"	11	.1250	5.74	5.25	18	.055	2.06
48	3	.0647	1/16"	10	.1406	6.43	5.90	19	.060	2.25
56	3 1/2	.0755	3/64"	9	.1562	7.17	6.56	20	.070	2.62
64	4	.0863	3/32"	8	.1718	7.86	7.21	21	.080	3.00
72	4 1/2	.0970	3/32"	7	.1875	8.59	7.75	22	.090	3.37
80	5	.1078	7/64"	6	.2031	9.33	8.39	23	.100	3.75
..	5 1/2	.1186	1/8"	5	.2187	10.0	9.04	24	.125	4.70
..	6	.1294	1/8"	4	.2343	10.7	9.69	25	.250	9.40
..	6 1/2	.1402	9/64"	3	.2500	11.5	10.33	26	.375	14.00
..	7	.1510	3/32"	The table above is to be used for both Standard Cold Rolled Sheet and No. 35 Sheet.				27	.500	18.75
..	7 1/2	.1617	3/32"					28	1.000	37.50
..	8	.1725	11/64"							
..	8 1/2	.1833	3/16"							
..	9	.1941	3/16"							
..	9 1/2	.2049	13/64"							
..	10	.2157	7/32"							
..	11	.2372	15/64"							
..	12	.2588	17/64"							
..	13	.2804	7/32"							
..	14	.3019	19/64"							
..	15	.3235	21/64"							
..	16	.3451	11/32"							

Weight of COPPER sheet by Gauge and Fractional Inch, refer to Pages 221 and 222, respectively.

NICKEL = Multiply Weight of Monel x 1.01.

NICKEL SILVER 10%—Multiply Weight of Nickel Silver x .9905.

NICKEL SILVER 15%—Multiply Weight of Nickel Silver x .9937.

NICKEL SILVER 20 and 30%—Multiply Weight of Nickel Silver x 1.0127.

PHOSPHOR BRONZE—Multiply Weight of BRASS x 1.0458.

Variations from these weights must be expected in practice.

**To determine the weight for
other alloys, use the following:**

ALUMINUM—Multiply Weight of 2S x 1.03 for 75S, x 1.01 for 3S, x 1.02 for 24S, x .99 for 52S. Weight of 61S and 63S same as 2S.

ARCHITECTURAL BRONZE—Approximately same as BRASS.

INCONEL—Multiply Weight of MONEL x .962.

LOW BRASS 80%—Multiply Weight of BRASS x 1.0229.

LOW BRASS 85%—Multiply Weight of BRASS x 1.03.

MUNTZ METAL—Approximately same as BRASS.

DATA

COMPARATIVE WEIGHTS OF SHEET METAL BY FRACTIONAL INCH THICKNESSES

In Pounds Per Square Foot

Thickness In Inches		METALS								
Frac.	Decimal	2S ALUMI- NUM	BRASS	COM- MERCIAL BRONZE	COPPER	18% NICKEL SILVER	MONEL	*NICKEL- CLAD STEEL	LEAD	ZINC
1/16"	.0625	.880	2.754	2.862	2.898	2.844	2.87	....	4.0	2.35
1/8"	.125	1.760	5.508	5.724	5.796	5.688	5.75	....	8.0	4.70
3/16"	.1875	2.641	8.262	8.586	8.694	8.532	8.62	7.75	12.0	7.05
1/4"	.250	3.521	11.02	11.45	11.59	11.38	11.49	10.33	16.0	9.40
5/16"	.3125	4.401	13.77	14.31	14.49	14.22	14.35	12.91	20.0	11.75
3/8"	.375	5.282	16.52	17.17	17.39	17.06	17.25	15.49	24.0	14.10
7/16"	.4375	6.162	19.28	19.94	20.29	19.91	20.09	18.08	28.0	16.45
1/2"	.500	7.043	22.03	22.90	23.18	22.75	22.98	20.66	32.0	18.80
9/16"	.5625	7.923	24.79	25.76	26.08	25.60	25.83	23.24	36.0	21.15
5/8"	.625	8.803	27.54	28.62	28.98	28.44	28.75	25.82	40.0	23.50
11/16"	.6875	9.684	30.29	31.48	31.88	31.28	31.57	28.40	44.0	25.85
3/4"	.750	10.564	33.05	34.35	34.78	34.13	34.47	30.99	48.0	28.80
13/16"	.8125	11.444	35.80	37.21	37.67	36.97	37.31	....	52.0	30.55
7/8"	.875	12.325	38.56	40.07	40.57	39.82	40.25	36.15	56.0	32.90
15/16"	.9375	13.205	41.31	42.93	43.47	42.66	42.95	....	60.0	35.25
1"	1.000	14.086	44.06	45.80	46.37	45.50	45.96	41.31	64.0	37.60
1 1/16"	1.0625	14.966	46.82	48.66	49.27	48.35	48.83	....	68.0	39.95
1 1/8"	1.125	15.846	49.57	51.52	52.16	51.19	51.71	....	72.0	42.30
1 3/16"	1.1875	16.727	52.33	54.27	55.06	54.04	54.58	....	76.0	44.65
1 1/4"	1.250	17.607	55.08	57.25	57.96	56.88	57.45	....	80.0	47.00
1 5/16"	1.315	18.487	57.83	60.11	60.86	59.72	60.31	....	84.0	49.25
1 3/8"	1.375	19.368	60.59	62.87	63.76	62.57	63.03	....	88.0	51.70
1 7/16"	1.4375	20.248	63.34	65.74	66.65	65.41	66.05	....	92.0	54.05
1 1/2"	1.500	21.129	66.10	67.70	69.55	68.26	68.94	61.97	96.0	56.40
1 5/8"	1.5625	22.009	68.85	71.56	72.45	71.10	71.79	....	100.0	58.75
1 3/4"	1.625	22.889	71.60	74.42	75.35	73.94	74.71	....	104.0	61.10
1 11/16"	1.6875	23.770	74.36	77.28	78.25	76.79	77.58	....	108.0	63.45
1 3/4"	1.750	24.650	77.11	80.15	81.14	79.63	80.43	....	112.0	65.80
1 13/16"	1.8125	25.530	79.87	83.01	84.04	82.48	83.27	....	116.0	68.15
1 7/8"	1.875	26.411	82.62	85.87	86.94	85.32	86.71	....	120.0	70.50
1 5/8"	1.9375	27.291	85.37	88.73	89.84	88.16	89.05	....	124.0	72.85
2"	2.000	28.172	88.13	91.60	92.74	91.01	91.92	82.62	128.0	75.20

*10% Nickel-Cladding (15% and 20% Cladding slightly heavier).

Variations from these weights must be expected in practice.

D A T A

COMPARATIVE WEIGHTS OF CIRCLES BASED ON WEIGHT OF HIGH BRASS

In Pounds Per Circle

BROWN & SHARPE'S GAUGE

Diameter in Inches	No. 30 (.0100)	No. 28 (.0126)	No. 26 (.0159)	No. 24 (.0201)	No. 22 (.0254)	No. 20 (.0320)	No. 18 (.0403)	No. 16 (.0508)	No. 14 (.0641)
4"	.0386	.0486	.0613	.0775	.0976	.1235	.1555	.1968	.247
4 1/4"	.0436	.0549	.0692	.0875	.1102	.1394	.1755	.2221	.279
4 1/2"	.0488	.0615	.0776	.0981	.1235	.1562	.1967	.2490	.312
4 3/4"	.0544	.0685	.0865	.1093	.1376	.1741	.2192	.2774	.348
5"	.0603	.0760	.0958	.1212	.1525	.1929	.2429	.307	.386
5 1/4"	.0665	.0837	.1057	.1336	.1681	.2127	.2678	.339	.425
5 1/2"	.0729	.0919	.1160	.1466	.1845	.2334	.2939	.372	.467
5 3/4"	.0797	.1004	.1268	.1602	.2017	.2551	.321	.407	.510
6"	.0868	.1094	.1380	.1745	.2196	.2778	.350	.443	.556
6 1/4"	.0942	.1187	.1498	.1893	.2383	.301	.380	.480	.603
6 1/2"	.1019	.1284	.1620	.2048	.2577	.326	.411	.520	.652
6 3/4"	.1099	.1384	.1747	.2208	.2779	.352	.443	.560	.703
7"	.1181	.1489	.1879	.2375	.2989	.378	.476	.603	.756
7 1/4"	.1267	.1597	.2015	.2547	.321	.406	.511	.646	.811
7 1/2"	.1356	.1709	.2157	.2726	.343	.434	.547	.692	.868
7 3/4"	.1448	.1825	.2303	.2911	.366	.463	.584	.739	.927
8"	.1543	.1944	.2454	.310	.390	.494	.622	.787	.988
8 1/2"	....	....	.2770	.350	.441	.557	.702	.888	1.115
9"	....	....	.311	.393	.494	.625	.787	.996	1.250
9 1/2"	....	....	.346	.437	.551	.696	.877	1.110	1.393
10"	....	....	.383	.485	.610	.772	.972	1.230	1.543
10 1/2"	....	....	.423	.534	.673	.851	1.071	1.356	1.701
11"	....	....	.464	.586	.738	.934	1.176	1.488	1.867
11 1/2"	....	....	.507	.641	.807	1.020	1.285	1.626	2.041
12"	....	....	.552	.698	.878	1.111	1.399	1.771	2.222
12 1/2"	....	....	.599	.757	.953	1.206	1.518	1.921	2.411
13"	....	....	.648	.819	1.031	1.304	1.642	2.078	2.608
13 1/2"	....	....	.699	.883	1.112	1.406	1.771	2.241	2.812
14"	....	....	.751	.950	1.196	1.512	1.905	2.410	3.02
14 1/2"	....	....	.806	1.019	1.283	1.622	2.043	2.585	3.24
15"	....	....	.863	1.090	1.372	1.738	2.186	2.767	3.47
15 1/2"	....	....	.921	1.164	1.466	1.854	2.335	2.954	3.71
16"	....	....	.981	1.241	1.562	1.975	2.488	3.15	3.95
17"	....	....	....	....	1.732	2.191	2.759	3.49	4.38
18"	....	....	....	....	1.976	2.500	3.15	3.98	5.00
19"	....	....	....	....	2.202	2.785	3.51	4.44	5.57
20"	....	....	....	....	2.440	3.09	3.89	4.92	6.17
21"	....	....	....	....	2.690	3.40	4.29	5.42	6.81
22"	....	....	....	....	2.953	3.73	4.70	5.95	7.47
23"	....	....	....	....	3.22	4.07	5.13	6.51	8.16
24"	....	....	....	....	3.51	4.44	5.60	7.08	8.89

To determine the weight of Circles for other Metals, multiply the above weight by the following conversion factors:

Aluminum (2S)	— .324	Monel	—1.05
Commercial Bronze (10%)	—1.04	Nickel	—1.06
Copper	—1.05	Nickel Silver (18%)	—1.03
Low Brass (85%)	—1.03	Phosphor Bronze (5%)	—1.045
Stainless	— .94		

D A T A

COMPARATIVE WEIGHTS OF STRIP BASED ON WEIGHT OF HIGH BRASS

In Pounds Per Linear Foot

Thickness in Inches		WIDTH OF METAL								
B. & S. Gauge	Decimal Equiv.	1/4"	3/8"	1/2"	5/8"	3/4"	1"	2"	3"	4"
30	.0100	.0091	.0137	.0183	.0229	.0275	.0367	.073	.110	.146
29	.0113	.0103	.0155	.0207	.0259	.0311	.0414	.082	.124	.166
28	.0126	.0115	.0173	.0231	.0289	.0347	.0462	.092	.138	.185
27	.0142	.0130	.0195	.0260	.0325	.0391	.0521	.104	.156	.208
26	.0156	.0146	.0218	.0291	.0364	.0437	.0583	.116	.175	.233
25	.0179	.0164	.0246	.0328	.0410	.0493	.0657	.131	.197	.262
24	.0201	.0184	.0276	.0369	.0461	.0553	.0738	.147	.221	.295
23	.0226	.0207	.0311	.0414	.0518	.0622	.0829	.166	.249	.331
22	.0254	.0233	.0349	.0466	.0582	.0699	.0932	.186	.279	.373
21	.0285	.0261	.0392	.0523	.0654	.0784	.1047	.209	.314	.418
20	.0320	.0293	.0440	.0587	.0734	.0881	.1175	.235	.352	.470
19	.0359	.0329	.0494	.0659	.0823	.0988	.1318	.263	.395	.527
18	.0403	.0370	.0554	.0739	.0924	.1110	.1480	.296	.443	.591
17	.0453	.0415	.0623	.0831	.1040	.1248	.1663	.332	.499	.665
16	.0508	.0466	.0699	.0932	.1166	.1399	.1865	.373	.559	.746
15	.0571	.0524	.0786	.1048	.1310	.1573	.2097	.419	.629	.838
14	.0641	.0588	.0882	.1177	.1471	.1765	.2354	.470	.706	.941
13	.0720	.0661	.0991	.1322	.1652	.1983	.2644	.528	.793	1.058
12	.0808	.0741	.1113	.1483	.1854	.2225	.2967	.593	.890	1.187
11	.0907	.0832	.1249	.1665	.2082	.2498	.3331	.666	.999	1.332
10	.1019	.0935	.1403	.1871	.2339	.2806	.3742	.748	1.123	1.497
9	.1144	.1050	.1575	.2100	.2625	.3151	.4201	.840	1.260	1.680
8	.1285	.1180	.1769	.2359	.2949	.3539	.4719	.943	1.416	1.887
7	.1443	.1325	.1987	.2649	.3312	.3974	.5299	1.060	1.590	2.119
6	.1620	.1487	.2231	.2974	.3718	.4461	.5949	1.190	1.785	2.379

To determine the weight of Strip for other Metals, multiply above weight by the following factors:

Aluminum (2S)	— .324	Monel	—1.05
Commercial Bronze (10%)	—1.04	Nickel	—1.06
Copper	—1.05	Nickel Silver (18%)	—1.03
Low Brass (85%)	—1.03	Steel	— .94

DATA

COMPARATIVE WEIGHTS OF ROUND ROD

In Pounds Per Linear Foot

Diameter	Decimal Equiv.	2S ALUMINUM	BRASS	BRONZE	COPPER	MONEL	STAINLESS
1/16"	.0625	.004	.011	.011	.011	.012	.010
1/8"	.125	.014	.045	.044	.047	.048	.042
3/16"	.1875	.032	.101	.100	.106	.111	.094
1/4"	.250	.058	.181	.178	.189	.190	.167
5/16"	.3125	.090	.282	.279	.295	.297	.261
3/8"	.375	.129	.407	.402	.426	.428	.376
7/16"	.4375	.176	.555	.548	.580	.583	.511
1/2"	.500	.230	.724	.715	.758	.761	.668
9/16"	.5625	.291	.917	.905	.959	.963	.845
5/8"	.625	.360	1.132	1.118	1.184	1.189	1.043
11/16"	.6875	.435	1.369	1.353	1.432	1.439	1.262
3/4"	.750	.518	1.630	1.610	1.705	1.712	1.502
13/16"	.8125	.608	1.913	1.889	2.001	2.010	1.763
7/8"	.875	.705	2.218	2.191	2.320	2.331	2.044
15/16"	.9375	.809	2.546	2.515	2.663	2.766	2.347
1"	1.000	.921	2.897	2.862	3.030	3.044	2.670
1 1/16"	1.0625	1.039	3.271	3.230	3.421	3.436	3.014
1 1/8"	1.125	1.165	3.667	3.622	3.835	3.853	3.379
1 1/16"	1.1875	1.298	4.086	4.035	4.273	4.293	3.766
1 1/4"	1.250	1.439	4.527	4.471	4.735	4.756	4.173
1 5/16"	1.3125	1.586	4.991	4.929	5.220	5.244	4.600
1 3/8"	1.375	1.741	5.478	5.410	5.729	5.756	5.049
1 1/2"	1.4375	1.903	5.987	5.913	6.262	6.291	5.518
1 5/8"	1.500	2.072	6.519	6.438	6.818	6.849	6.008
1 11/16"	1.5625	2.248	7.073	6.986	7.398	7.432	6.520
1 3/4"	1.625	2.431	7.651	7.556	8.002	8.039	7.051
1 13/16"	1.6875	2.622	8.250	8.149	8.630	8.669	7.604
1 7/8"	1.750	2.820	8.873	8.763	9.281	9.321	8.178
1 15/16"	1.8125	3.025	9.518	9.401	9.955	10.001	8.773
2"	1.875	3.237	10.19	10.06	10.65	10.702	9.388
2 1/16"	1.9375	3.457	10.88	10.74	11.38	11.428	10.024
2 1/8"	2.000	3.683	11.59	11.45	12.12	12.178	10.681
2 1/4"	2.125	4.158	13.08	12.92	13.68	13.747	12.058
2 3/8"	2.250	4.662	14.67	14.49	15.34	15.411	13.519
2 1/2"	2.375	5.194	16.34	16.14	17.09	17.171	15.062
2 5/8"	2.500	5.755	18.11	17.88	18.94	19.027	16.690
2 3/4"	2.625	6.345	19.96	19.72	20.88	20.977	18.400
2 7/8"	2.750	6.964	21.91	21.64	22.92	23.022	20.195
3"	2.875	7.611	23.95	23.65	25.05	25.162	22.072
3 1/8"	3.000	8.287	26.08	25.75	27.27	27.399	24.033
3 1/4"	3.250	9.746	.....	30.22	32.01	32.155	28.206
3 1/2"	3.500	11.303	.....	35.05	37.12	37.291	32.712
3 3/4"	3.750	12.975	.....	40.24	42.61	42.810	37.552
4"	4.000	14.763	.....	45.78	48.49	48.706	42.726
4 1/4"	4.250	16.666	.....	51.69	54.74	54.985	48.233
4 1/2"	4.500	18.684	.....	57.75	61.37	61.644	54.075

For the weight of other Metals, multiply by the following:

Aluminum

(17S-T or 11S-T)

Commercial Bronze

Muntz Metal

—2S Alum. Weight by 1.03

—Brass Weight by 1.039

—Same Weight as Brass

Nickel

Nickel Silver (12%)

Phosphor Bronze

—Monel Weight by 1.01

—Brass Weight by 1.022

—Brass Weight by 1.049

DATA

COMPARATIVE WEIGHTS OF WIRE

Pounds Per 1000 Feet

Diameter		2S ALUMINUM	BRASS	COPPER	MONEL	18% NICKEL SILVER
B. & S. Gauge	Decimal					
40	.0031	....	.0276	.0299	.0289	.0292
39	.0035	....	.0352	.0377	.0368	.0369
38	.004	....	.0459	.0475	.0482	.0465
37	.0045	....	.0582	.0600	.0610	.0586
36	.0050	.010	.0718	.0756	.0753	.0739
35	.0056	.020	.0901	.0954	.0945	.0933
34	.0063	.040	.1141	.1203	.1196	.1176
33	.0071	.050	.1449	.1517	.1519	.1483
32	.0080	.060	.1840	.1913	.1929	.1870
31	.0089	.070	.2277	.2413	.2387	.2359
30	.0100	.090	.2875	.3042	.3014	.2977
29	.0113	.120	.3671	.3836	.3785	.3752
28	.0126	.140	.4564	.4837	.4786	.4728
27	.0142	.190	.5796	.6100	.6076	.5967
26	.0159	.230	.7267	.7692	.7619	.7519
25	.0179	.300	.9210	.9699	.9655	.9482
24	.0201	.350	1.161	1.223	1.218	1.196
23	.0226	.500	1.468	1.542	1.539	1.508
22	.0254	.600	1.855	1.945	1.946	1.902
21	.0285	.700	2.335	2.452	2.430	2.397
20	.0320	.900	2.944	3.092	3.085	3.023
19	.0359	1.20	3.705	3.899	3.906	3.812
18	.0403	1.40	4.669	4.917	4.822	4.806
17	.0453	1.90	5.899	6.200	6.100	6.062
16	.0508	2.30	7.418	7.818	7.836	7.643
15	.0571	2.90	9.372	9.858	9.788	9.639
14	.0641	3.80	11.81	12.43	12.35	12.15
13	.0720	4.80	14.90	15.68	15.62	15.32
12	.0808	6.00	18.77	19.77	19.77	19.33
11	.0907	7.60	23.65	24.92	25.06	24.37
10	.1019	9.50	29.85	31.43	31.35	30.73
9	.1144	12.00	37.62	39.63	39.17	38.73
8	.1285	15.10	47.47	49.98	49.37	48.87
7	.1443	19.10	59.86	63.02	62.49	61.62
6	.1620	24.20	75.44	79.46	79.09	77.67
5	.1819	30.50	95.11	100.20	99.82	97.92
4	.2043	38.40	120.00	126.40	125.40	123.50
3	.2294	48.40	151.30	159.30	158.10	155.70
2	.2576	61.40	190.70	200.90	200.50	196.40
1	.2893	77.10	240.60	253.30	250.50	247.70
1/0	.3249	97.40	303.40	319.50	318.10	312.40
2/0	.3648	122.90	382.50	402.80	401.50	393.80
3/0	.4096	....	482.30	507.90	508.50	496.50
4/0	.4600	....	608.30	640.50	....	626.20

For the weight of other Metals, use the following table:

Aluminum (17S) = Weight of 2S Aluminum Wire Multiplied by 1.03
 Nickel = Weight of Monel Wire Multiplied by 1.01
 Phosphor Bronze = Weight of Brass Wire Multiplied by 1.0492
 Steel = Weight of Brass Wire Multiplied by .94

DATA

COMPARATIVE WEIGHTS OF HEXAGON ROD

In Pounds Per Linear Foot

Size	Decimal Equiv.	2S ALUMINUM	BRASS	BRONZE	COPPER	MONEL	STAINLESS
1/16"	.0625	.004	.012	.012	.033	.....	.....
1/8"	.125	.016	.049	.049	.052	.....	.046
3/16"	.1875	.035	.112	.111	.117	.....	.104
1/4"	.250	.065	.199	.197	.208	.209	.184
5/16"	.3125	.101	.312	.308	.326	.327	.287
3/8"	.375	.143	.449	.443	.469	.472	.414
7/16"	.4375	.195	.611	.603	.639	.643	.563
1/2"	.500	.254	.798	.788	.835	.839	.736
9/16"	.5625	.322	1.011	.998	1.057	1.062	.932
5/8"	.625	.397	1.248	1.232	1.305	1.311	1.150
1 1/16"	.6875	.481	1.510	1.491	1.579	1.586	1.392
3/4"	.750	.572	1.797	1.775	1.880	1.887	1.656
13/16"	.8125	.672	2.109	2.083	2.206	2.216	1.944
7/8"	.875	.780	2.446	2.416	2.558	2.570	2.254
1 1/8"	.9375	.893	2.808	2.773	2.937	2.940	2.588
1"	1.000	1.016	3.195	3.155	3.341	3.356	2.945
1 1/16"	1.0625	1.148	3.607	3.562	3.772	3.788	3.324
1 1/8"	1.125	1.287	4.043	3.993	4.229	4.248	3.727
1 3/16"	1.1875	1.433	4.505	4.449	4.712	4.733	4.150
1 1/4"	1.250	1.587	4.992	4.930	5.221	5.243	4.601
1 5/16"	1.3125	1.750	5.503	5.435	5.756	5.782	5.072
1 3/8"	1.375	1.921	6.040	5.965	6.317	6.346	5.567
1 7/16"	1.4375	2.100	6.602	6.520	6.905	6.934	6.085
1 1/2"	1.500	2.286	7.188	7.099	7.518	7.551	6.625
1 5/8"	1.5625	2.484	7.800	7.703	8.158	8.194	7.190
1 5/8"	1.625	2.687	8.436	8.332	8.824	8.863	7.775
1 11/16"	1.6875	2.897	9.097	8.985	9.515	9.558	8.380
1 3/4"	1.750	3.115	9.784	9.663	10.23	10.276	9.018
1 13/16"	1.8125	3.342	10.50	10.37	10.98	11.026	9.670
1 7/8"	1.875	3.576	11.23	11.09	11.75	11.799	10.350
1 15/16"	1.9375	3.819	11.99	11.84	12.54	12.599	11.050
2"	2.000	4.069	12.78	12.62	13.37	13.426	11.780
2 1/8"	2.125	.....	14.43	14.25	15.09	15.156	13.300
2 1/4"	2.250	.....	16.17	15.97	16.92	16.991	14.900
2 3/8"	2.375	.....	18.02	17.80	18.85	18.921	16.600
2 1/2"	2.500	.....	19.97	19.72	20.88	20.977	18.400
2 5/8"	2.625	.....	22.01	21.74	23.02	23.127	20.300
2 3/4"	2.750	.....	24.16	23.86	25.27	25.382	22.300
2 7/8"	2.875	.....	26.41	26.08	27.62	27.741	24.300
3"	3.000	.....	28.75	28.40	30.07	30.207	26.500

For weights of other metals, see foot note, page 246.

DATA

COMPARATIVE WEIGHTS OF SQUARE ROD

In Pounds Per Linear Foot

Size	Decimal Equiv.	2S ALUMINUM	BRASS	BRONZE	COPPER	MONEL	STAINLESS
1/16"	.0625	.005	.014	.014	.015	.....	.013
1/8"	.125	.011	.057	.057	.060	.....	.053
3/16"	.1875	.041	.129	.128	.135	.....	.120
1/4"	.250	.073	.236	.227	.241	.....	.214
5/16"	.3125	.115	.360	.355	.378	.379	.334
3/8"	.375	.165	.518	.512	.542	.545	.481
7/16"	.4375	.224	.706	.697	.738	.742	.651
1/2"	.500	.293	.922	.910	.964	.969	.855
9/16"	.5625	.371	1.167	1.153	1.221	1.226	1.080
5/8"	.625	.458	1.441	1.423	1.507	1.514	1.330
11/16"	.6875	.554	1.744	1.722	1.824	1.832	1.607
3/4"	.750	.659	2.075	2.049	2.170	2.180	1.920
13/16"	.8125	.774	2.435	2.405	2.547	2.559	2.245
7/8"	.875	.898	2.824	2.789	2.954	2.968	2.620
15/16"	.9375	1.030	3.242	3.202	3.391	3.407	2.988
1"	1.000	1.172	3.689	3.643	3.858	3.876	3.420
1 1/16"	1.0625	1.324	4.164	4.113	4.356	4.376	3.838
1 1/8"	1.125	1.484	4.669	4.611	4.883	4.906	4.300
1 1/16"	1.1875	1.653	5.202	5.138	5.441	5.466	4.795
1 1/4"	1.250	1.832	5.764	5.693	6.029	6.056	5.310
1 3/16"	1.3125	2.019	6.355	6.276	6.647	6.677	5.857
1 3/8"	1.375	2.217	6.974	6.888	7.295	7.328	6.428
1 7/16"	1.4375	2.423	7.623	7.529	7.973	8.009	7.026
1 1/2"	1.500	2.638	8.300	8.198	8.681	8.721	7.650
1 5/8"	1.5625	2.862	9.006	8.895	9.420	9.463	8.301
1 3/4"	1.625	3.096	9.741	9.621	10.19	10.235	8.978
1 11/16"	1.6875	3.339	10.50	10.38	10.99	11.038	9.682
1 3/4"	1.750	3.590	11.30	11.16	11.82	11.870	10.410
1 13/16"	1.8125	3.852	12.12	11.97	12.68	12.733	11.170
1 7/8"	1.875	4.122	12.97	12.81	13.56	13.627	11.953
1 15/16"	1.9375	4.401	13.85	13.68	14.48	14.550	12.763
2"	2.000	4.690	14.76	14.57	15.43	15.504	13.600
2 1/16"	2.125	5.294	16.66	16.45	17.42	17.503	15.353
2 1/4"	2.250	5.935	18.68	18.44	19.53	19.622	17.213
2 3/8"	2.375	6.613	20.81	20.55	21.76	21.76	19.178
2 1/2"	2.500	7.328	23.06	22.77	24.12	24.12	21.250
2 5/8"	2.625	8.079	25.42	25.11	26.59	26.59	23.428
2 3/4"	2.750	8.866	27.90	27.55	29.18	29.18	25.713
2 7/8"	2.875	9.691	30.49	30.12	31.89	31.89	28.103
3"	3.000	10.550	33.20	32.79	34.73	34.73	30.600

For weights of other Metals, see foot note, page 246.

DATA

COMPARATIVE WEIGHTS OF RECTANGULAR ROD BASED ON WEIGHT OF COPPER

In Pounds Per Linear Foot

Width in Inches	THICKNESS OF METAL							
	1/16"	1/8"	3/16"	1/4"	3/8"	1/2"	3/4"	1"
1/2"	.1208	.2415	.3623	.4830	....	....	....	....
5/8"	.1509	.3019	.4528	.6038	....	....	....	....
3/4"	.1811	.3623	.5434	.7245	....	....	....	....
7/8"	.2113	.4226	.6339	.8453	....	....	....	....
1"	.2415	.4830	.7245	.9660	1.449	1.932	2.898	3.864
1 1/4"	.3019	.6038	.9056	1.208	1.811	2.415	3.623	4.830
1 1/2"	.3623	.7245	1.087	1.449	2.174	2.898	4.347	5.796
1 3/4"	.4226	.8453	1.268	1.691	2.536	3.381	5.072	6.762
2"	.4830	.9660	1.449	1.932	2.898	3.864	5.796	7.728
2 1/4"	.5434	1.087	1.630	2.174	3.260	4.347	6.521	8.694
2 1/2"	.6038	1.208	1.811	2.415	3.623	4.830	7.245	9.660
2 3/4"	.6641	1.328	1.992	2.657	3.985	5.313	7.970	10.63
3"	.7245	1.449	2.174	2.898	4.347	5.796	8.694	11.59
3 1/4"	.7849	1.570	2.355	3.140	4.709	6.279	9.419	12.56
3 1/2"	.8453	1.691	2.536	3.381	5.072	6.762	10.14	13.52
3 3/4"	.9056	1.811	2.717	3.623	5.434	7.245	10.87	14.49
4"	.9660	1.932	2.898	3.864	5.796	7.728	11.59	15.46
4 1/4"	1.026	2.053	3.079	4.106	6.158	8.211	12.32	16.62
4 1/2"	1.087	2.174	3.260	4.347	6.521	8.694	13.04	17.39
4 3/4"	1.147	2.294	3.441	4.589	6.883	9.177	13.77	18.35
5"	1.208	2.415	3.623	4.830	7.245	9.660	14.49	19.32
5 1/4"	1.268	2.536	3.804	5.072	7.607	10.14	15.21	20.29
5 1/2"	1.328	2.657	3.985	5.313	7.970	10.63	15.94	21.25
5 3/4"	1.389	2.777	4.166	5.555	8.332	11.11	16.66	22.22
6"	1.449	2.898	4.347	5.796	8.694	11.59	17.39	23.18

To determine the weight of Rods for other Metals, multiply above weights by the following factors:

Aluminum (2S)	—.304	Monel	—.99
Aluminum (17S)	—.313	Nickel	—.98
Architectural Bronze	—.95	Nickel Silver (18%)	—.97
Brass (High)	—.95	Phosphor Bronze	—.99
Commercial Bronze	—.98	Steel	—.92

Variations from these weights must be expected in practice.

DATA

DIMENSIONS OF RIVET AND SCREW GAUGES

Decimal Equivalents (Inches)

(DIAMETER UNDER HEAD)

Number of Gauge	For Rivets	For Standard Wood Screws	For Machine Screws (A.S.M.E.)	
			Minimum	Maximum
0000	.454	....	....	....
000	.425	.0315	....	....
00	.380	.0447	....	....
0	.340	.0578	.0572	.060
1	.300	.0710	.0700	.073
2	.284	.0842	.0828	.086
3	.259	.0973	.0955	.099
4	.238	.1105	.1082	.112
5	.220	.1236	.1210	.125
6	.203	.1368	.1338	.138
7	.180	.1500	.1466	.151
8	.165	.1631	.1596	.164
9	.148	.1763	.1723	.177
10	.134	.1894	.1852	.190
11	.120	.2026	....	....
12	.109	.2158	.2111	.216
13	.095	.2289	....	....
14	.083	.2421	.2368	.242
15	.072	.2552	....	....
16	.065	.2684	.2626	.268
17	.058	.2816	....	....
18	.049	.2947	.2884	.294
19	.042	.3079	....	....
20	.035	.3210	.3144	.320
21	.032	.3342	....	....
22	.028	.3474	.3402	.346
23	.025	.3605	....	....
24	.022	.3737	.3660	.372
25	.020	.3868	....	....
26	.018	.4000	.3920	.398
27	.016	.4132	....	....
28	.014	.4263	.4178	.424
29	.013	.4395	....	....
30	.012	.4526	.4438	.450
31	.010	....	....	....
32	.009	.4789	....	....
33	.008	....	....	....
34	.007	.5053	....	....
35	.005	....	....	....
36	.004	....	....	....

DATA

DIMENSIONS AND DECIMAL EQUIVALENTS OF TWIST DRILLS

In Inches

NUMBER SIZES

No.	Drill Diameter	No.	Drill Diameter	No.	Drill Diameter	No.	Drill Diameter
1	.2280	21	.1590	41	.0960	61	.0390
2	.2210	22	.1570	42	.0935	62	.0380
3	.2130	23	.1540	43	.0890	63	.0370
4	.2090	24	.1520	44	.0860	64	.0360
5	.2055	25	.1495	45	.0820	65	.0350
6	.2040	26	.1470	46	.0810	66	.0330
7	.2010	27	.1440	47	.0785	67	.0320
8	.1990	28	.1405	48	.0760	68	.0310
9	.1960	29	.1360	49	.0730	69	.0292
10	.1935	30	.1285	50	.0700	70	.0280
11	.1910	31	.1200	51	.0670	71	.0260
12	.1890	32	.1160	52	.0635	72	.0250
13	.1850	33	.1130	53	.0595	73	.0240
14	.1820	34	.1110	54	.0550	74	.0225
15	.1800	35	.1100	55	.0520	75	.0210
16	.1770	36	.1065	56	.0463	76	.0200
17	.1730	37	.1040	57	.0430	77	.0180
18	.1695	38	.1015	58	.0420	78	.0160
19	.1660	39	.0995	59	.0410	79	.0145
20	.1610	40	.0980	60	.0400	80	.0135

LETTER SIZES

Letter	Drill Diameter	Letter	Drill Diameter	Letter	Drill Diameter	Letter	Drill Diameter
A	.234	H	.266	O	.316	U	.368
B	.238	I	.272	P	.323	V	.377
C	.242	J	.277	Q	.332	W	.386
D	.246	K	.281	R	.339	X	.397
E	.250	L	.290	S	.348	Y	.404
F	.257	M	.295	T	.358	Z	.413
G	.261	N	.302				

WEIGHTS AND MEASURES

Measures of Length

1 mile = 1760 yards = 5280 feet.
 1 yard = 3 feet = 36 inches.
 1 foot = 12 inches.
 The following measures of length are also used occasionally:
 1 mil = 0.001 inch. 1 fathom = 2 yards = 6 feet.
 1 rod = 5.5 yards = 16.5 feet. 1 hand = 4 inches.
 1 span = 9 inches.

Nautical Measure

1 league = 3 nautical miles.
 1 nautical mile (knot) = 6080.26 feet = 1.1516 statute mile.
 One degree at the equator = 60 nautical miles = 69.168 statute miles.
 360 degrees = 21,600 nautical miles = 24,874.5 statute miles = circumference of earth at the equator.

Square Measure

1 square mile = 640 acres = 6400 square chains.
 1 acre = 10 square chains = 4840 square yards = 43,560 square feet.
 1 square chain = 16 square rods = 484 square yards = 4356 square feet.
 1 square rod = 30.25 square yards = 272.25 square feet = 625 square links.
 1 square yard = 9 square feet.
 1 square foot = 144 square inches.
 An acre is equal to a square, the side of which is 208.7 feet.

Surveyor's Measure

1 mile = 8 furlongs = 80 chains.
 1 furlong = 10 chains = 220 yards.
 1 chain = 4 rods = 22 yards = 66 feet = 100 links.
 1 link = 7.92 inches.

Measure Used for Diameters and Areas of Electric Wires

- 1 circular inch = area of circle 1 inch in diameter = 0.7854 square inch.
- 1 circular inch = 1,000,000 circular mils.
- 1 square inch = 1.2732 circular inch = 1,273,239 circular mils.

A circular mil is the area of a circle 0.001 inch in diameter.

Cubic Measure

- 1 cubic yard = 27 cubic feet.
 - 1 cubic foot = 1728 cubic inches.
- The following measures are also used for wood and masonry:
- 1 cord of wood = 4 x 4 x 8 feet = 128 cubic feet.
 - 1 perch of masonry = 16½ x 1½ x 1 foot = 24¾ cubic feet.

Shipping Measure

For measuring entire internal capacity of a vessel:

- 1 register ton = 100 cubic feet.

For measurement of cargo:

- 1 U. S. shipping ton = 40 cubic feet = 32.143 U. S. bushels = 31.16 Imperial bushels.
- 1 British shipping ton = 42 cubic feet = 33.75 U. S. bushels = 32.72 Imperial bushels.

Measures of Weight

Avoirdupois or Commercial Weight

- 1 gross or long ton = 2240 pounds.
- 1 net or short ton = 2000 pounds.
- 1 pound = 16 ounces = 7000 grains.
- 1 ounce = 16 drachms = 437.5 grains.

Troy Weight, Used for Weighing Gold and Silver

- 1 pound = 12 ounces = 5760 grains.
- 1 ounce = 20 pennyweights = 480 grains.
- 1 pennyweight = 24 grains.
- 1 carat (used in weighing diamonds) = 3.168 grains.
- 1 grain troy = 1 grain avoirdupois = 1 grain apothecaries' weight.

Apothecaries' Weight

- 1 pound = 12 ounces = 5760 grains.
- 1 ounce = 8 drachms = 840 grains.
- 1 drachm = 3 scruples = 60 grains.
- 1 scruple = 20 grains.

Measures of Weight

The following measures for weight are now seldom used in the United States:

- 1 hundredweight = 4 quarters = 112 pounds (1 gross or long ton = 20 hundredweights); 1 quarter = 28 pounds; 1 stone = 14 pounds; 1 quintal = 100 pounds.

Dry Measure

- 1 bushel (U. S. or Winchester struck bushel) = 1.2445 cubic foot = 2150.42 cubic inches.
- 1 bushel = 4 pecks = 32 quarts = 64 pints.
- 1 peck = 8 quarts = 16 pints.
- 1 quart = 2 pints.
- 1 heaped bushel = 1¼ struck bushel.
- 1 cubic foot = 0.8036 struck bushel.
- 1 British Imperial bushel = 8 Imperial gallons = 1.2837 cubic foot = 2218.19 cubic inches.

Liquid Measure

- 1 U. S. gallon = 0.1337 cubic foot = 231 cubic inches = 4 quarts = 8 pints.
- 1 quart = 2 pints = 8 gills.
- 1 pint = 4 gills.
- 1 British Imperial gallon = 1.2003 U. S. gallon = 277.27 cubic inches.
- 1 cubic foot = 7.48 U. S. gallons.

Old Liquid Measure

- 1 tun = 2 pipes = 3 puncheons.
- 1 pipe or butt = 2 hogsheads = 4 barrels = 126 gallons.
- 1 puncheon = 2 tierces = 84 gallons.
- 1 hogshead = 2 barrels = 63 gallons.
- 1 tierce = 42 gallons.
- 1 barrel = 31½ gallons.

Apothecaries' Fluid Measure

- 1 U. S. fluid ounce = 8 drachms = 1.805 cubic inches = 1/128 U. S. gallon.
- 1 fluid drachm = 60 minims.
- 1 British fluid ounce = 1.732 cubic inch.

Measures of Pressure

- 1 pound per square inch = 144 pounds per square foot = 0.068 atmosphere = 2.042 inches of mercury at 62 degrees F. = 27.7 inches of water at 62 degrees F. = 2.31 feet of water at 62 degrees F.
- 1 atmosphere = 30 inches of mercury at 62 degrees F. = 14.7 pounds per square inch = 2116.3 pounds per square foot = 33.95 feet of water at 62 degrees F.
- 1 foot of water at 62 degrees F. = 62.355 pounds per square foot = 0.433 pound per square inch.
- 1 inch of mercury at 62 degrees F. = 1.132 foot of water = 13.58 inches of water = 0.491 pound per square inch.

Miscellaneous

- 1 great gross = 12 gross = 144 dozen.
- 1 gross = 12 dozen = 144 units.
- 1 dozen = 12 units.
- 1 score = 20 units.
- 1 quire = 24 sheets.
- 1 ream = 20 quires = 480 sheets.
- 1 ream printing paper = 500 sheets.

DATA

WEIGHTS AND MEASURES—Continued Metric and English LENGTH

1 mil	=	.001	inch
	=	.025400	millimeter
	=	.0025400	centimeter
1 inch	=	1000	mils
	=	25.400	millimeters
	=	2.5400	centimeters
1 foot	=	30.480	centimeters
	=	.30480	meter
1 yard	=	91.440	centimeters
	=	.9144	meter
1 mile	=	1609.4	meters
	=	1.6094	kilometers
1 millimeter	=	39.370	mils
	=	.039370	inch
1 centimeter	=	.39370	inch
	=	.032808	foot
1 meter	=	39.370	inches
	=	3.2808	feet
1 kilometer	=	3280.8	feet
	=	.62137	mile

SURFACE

1 circular mil	=	.78540	square mil
	=	.000001	circular inch
	=	.00064516	circular millimeter
1 square mil	=	1.2732	circular mil
	=	.000001	square inch
	=	.00064516	square millimeter
1 circular inch	=	1000000	circular mils
	=	645.16	circular millimeters
	=	6.4516	circular centimeters
1 square inch	=	1000000	square mils
	=	1273240	circular mils
	=	645.16	square millimeters
	=	6.4516	square centimeters
1 square foot	=	929.03	square centimeters
1 circular millimeter	=	1550.0	circular mils
1 circular centimeter	=	155000	circular mils
1 circular millimeter	=	.15500	circular inch
1 square millimeter	=	1973.5	circular mils
	=	.0015500	square inch
1 square centimeter	=	197352	circular mils
	=	.15500	square inch

VOLUME

1 cubic inch	=	16.387	cubic centimeters
1 cubic foot	=	28317	cubic centimeters
1 cubic centimeter	=	.061023	cubic inch
1 cubic inch of water	=	.0361	pound
1 cubic foot of water	=	62.5	pounds

WEIGHT

1 pound (avoirdupois)	=	453.59	grams
1 gram	=	.0022046	pound (avoirdupois)
1 kilogram	=	2.2046	pounds (avoirdupois)

DATA

DISTANCE ACROSS CORNERS OF HEXAGONS AND SQUARES



$$D = 1.1547 d$$

$$E = 1.4142 d$$

d	D	E	d	D	E	d	D	E
1/4"	0.2886	0.3535	1 1/4"	1.4434	1.7677	2 5/16"	2.6702	3.2703
9/32"	0.3247	0.3977	1 9/32"	1.4794	1.8119	2 3/8"	2.7424	3.3587
5/16"	0.3608	0.4419	1 5/16"	1.5155	1.8561	2 7/16"	2.8145	3.4471
11/32"	0.3968	0.4861	1 11/32"	1.5516	1.9003	2 1/2"	2.8867	3.5355
3/8"	0.4329	0.5303	1 3/8"	1.5877	1.9445	2 9/16"	2.9583	3.6239
13/32"	0.4690	0.5745	1 13/32"	1.6238	1.9887	2 5/8"	3.0311	3.7123
7/16"	0.5051	0.6187	1 7/16"	1.6598	2.0329	2 11/16"	3.1032	3.8007
15/32"	0.5412	0.6629	1 15/32"	1.6959	2.0771	2 3/4"	3.1754	3.8891
1/2"	0.5773	0.7071	1 1/2"	1.7320	2.1213	2 13/16"	3.2476	3.9794
17/32"	0.6133	0.7513	1 17/32"	1.7681	2.1655	2 7/8"	3.3197	4.0658
9/16"	0.6494	0.7955	1 9/16"	1.8042	2.2097	2 15/16"	3.3919	4.1542
19/32"	0.6855	0.8397	1 19/32"	1.8403	2.2539	3"	3.4641	4.2426
5/8"	0.7216	0.8839	1 5/8"	1.8764	2.2981	3 1/16"	3.5362	4.3310
21/32"	0.7576	0.9281	1 21/32"	1.9124	2.3423	3 1/8"	3.6084	4.4194
11/16"	0.7937	0.9723	1 11/16"	1.9485	2.3865	3 3/16"	3.6806	4.5078
23/32"	0.8298	1.0164	1 23/32"	1.9846	2.4306	3 1/4"	3.7527	4.5962
3/4"	0.8659	1.0606	1 3/4"	2.0207	2.4708	3 5/16"	3.8249	4.6846
25/32"	0.9020	1.1048	1 25/32"	2.0568	2.5190	3 3/8"	3.8971	4.7729
13/16"	0.9380	1.1490	1 13/16"	2.0929	2.5632	3 7/16"	3.9692	4.8613
27/32"	0.9741	1.1932	1 27/32"	2.1289	2.6074	3 1/2"	4.0414	4.9497
7/8"	1.0102	1.2374	1 7/8"	2.1650	2.6516	3 9/16"	4.1136	5.0381
29/32"	1.0463	1.2816	1 29/32"	2.2011	2.6958	3 5/8"	4.1857	5.1265
15/16"	1.0824	1.3258	1 15/16"	2.2372	2.7400	3 11/16"	4.2579	5.2149
31/32"	1.1184	1.3700	1 31/32"	2.2733	2.7842	3 3/4"	4.3301	5.3033
1"	1.1547	1.4142	2"	2.3094	2.8284	3 13/16"	4.4023	5.3917
1 1/32"	1.1907	1.4584	2 1/32"	2.3453	2.8726	3 7/8"	4.4744	5.4801
1 1/16"	1.2268	1.5026	2 1/16"	2.3815	2.9168	3 15/16"	4.5466	5.5684
1 3/32"	1.2629	1.5468	2 3/32"	2.4176	2.9610	4"	4.6188	5.6568
1 1/8"	1.2990	1.5910	2 1/8"	2.4537	3.0052	4 1/8"	4.7631	5.8336
1 5/32"	1.3351	1.6352	2 5/32"	2.4898	3.0494	4 1/4"	4.9074	6.0104
1 3/16"	1.3712	1.6793	2 3/16"	2.5259	3.0936	4 3/8"	5.0518	6.1872
1 7/32"	1.4073	1.7235	2 7/32"	2.5981	3.1820	4 1/2"	5.1961	6.3639

DATA

APPROXIMATE STOCK REQUIRED TO MAKE 1000 PIECES

ALLOWANCE HAS BEEN MADE FOR BAR END LOSS

Length of Finished Piece Plus Cut-Off— Inches	Number of Feet Per 1000 Pieces	Length of Finished Piece Plus Cut-Off— Inches	Number of Feet Per 1000 Pieces	Length of Finished Piece Plus Cut-Off— Inches	Number of Feet Per 1000 Pieces
$\frac{1}{32}$ "	2.6	$1\frac{9}{32}$ "	107.3	$2\frac{17}{32}$ "	214.4
$\frac{1}{16}$ "	5.2	$1\frac{5}{16}$ "	110.2	$2\frac{7}{16}$ "	214.9
$\frac{3}{32}$ "	7.8	$1\frac{11}{32}$ "	113.0	$2\frac{1}{32}$ "	218.3
$\frac{1}{8}$ "	10.5	$1\frac{3}{8}$ "	115.5	$2\frac{5}{8}$ "	222.1
$\frac{5}{32}$ "	13.1	$1\frac{13}{32}$ "	117.7	$2\frac{21}{32}$ "	222.6
$\frac{3}{16}$ "	15.7	$1\frac{7}{16}$ "	121.1	$2\frac{11}{16}$ "	226.5
$\frac{7}{32}$ "	18.3	$1\frac{5}{16}$ "	123.8	$2\frac{23}{32}$ "	227.8
$\frac{1}{4}$ "	20.9	$1\frac{1}{2}$ "	126.4	$2\frac{3}{4}$ "	230.8
$\frac{9}{32}$ "	23.6	$1\frac{17}{32}$ "	129.0	$2\frac{25}{32}$ "	234.9
$\frac{5}{16}$ "	26.2	$1\frac{9}{16}$ "	131.8	$2\frac{13}{16}$ "	235.9
$\frac{11}{32}$ "	28.8	$1\frac{9}{32}$ "	133.4	$2\frac{7}{32}$ "	240.0
$\frac{3}{8}$ "	31.4	$1\frac{5}{8}$ "	136.4	$2\frac{7}{8}$ "	244.0
$1\frac{1}{32}$ "	34.0	$1\frac{21}{32}$ "	139.6	$2\frac{29}{32}$ "	244.8
$\frac{7}{16}$ "	36.7	$1\frac{11}{16}$ "	141.2	$2\frac{5}{16}$ "	249.8
$1\frac{5}{32}$ "	39.3	$1\frac{23}{32}$ "	144.8	$2\frac{31}{32}$ "	250.4
$\frac{1}{2}$ "	41.9	$1\frac{3}{4}$ "	146.9	3"	252.5
$1\frac{7}{32}$ "	44.5	$1\frac{25}{32}$ "	150.2	$3\frac{1}{32}$ "	255.4
$\frac{9}{16}$ "	47.1	$1\frac{13}{16}$ "	152.2	$3\frac{1}{16}$ "	259.9
$1\frac{9}{32}$ "	49.7	$1\frac{27}{32}$ "	155.4	$3\frac{3}{32}$ "	261.0
$\frac{5}{8}$ "	52.4	$1\frac{7}{8}$ "	158.4	$3\frac{1}{8}$ "	263.3
$2\frac{1}{32}$ "	55.0	$1\frac{29}{32}$ "	160.6	$3\frac{5}{32}$ "	266.7
$1\frac{11}{16}$ "	57.6	$1\frac{5}{16}$ "	162.2	$3\frac{1}{16}$ "	267.2
$2\frac{3}{32}$ "	60.2	$1\frac{31}{32}$ "	167.9	$3\frac{7}{32}$ "	272.6
$\frac{3}{4}$ "	62.8	2"	169.0	$3\frac{1}{4}$ "	273.0
$2\frac{5}{32}$ "	65.4	$2\frac{1}{32}$ "	171.2	$3\frac{9}{32}$ "	278.6
$1\frac{13}{16}$ "	68.0	$2\frac{1}{16}$ "	173.8	$3\frac{5}{16}$ "	279.3
$2\frac{7}{32}$ "	70.7	$2\frac{3}{32}$ "	176.4	$3\frac{11}{32}$ "	283.8
$\frac{7}{8}$ "	73.3	$2\frac{1}{8}$ "	178.9	$3\frac{3}{8}$ "	285.4
$2\frac{9}{32}$ "	75.9	$2\frac{5}{32}$ "	181.5	$3\frac{13}{32}$ "	285.9
$1\frac{5}{16}$ "	78.5	$2\frac{3}{16}$ "	184.3	$3\frac{7}{16}$ "	292.3
$3\frac{1}{32}$ "	81.1	$2\frac{7}{32}$ "	187.5	$3\frac{15}{32}$ "	292.9
1"	83.8	$2\frac{1}{4}$ "	190.3	$3\frac{1}{2}$ "	297.1
$1\frac{1}{32}$ "	86.6	$2\frac{9}{32}$ "	193.3	$3\frac{17}{32}$ "	299.7
$1\frac{1}{16}$ "	89.2	$2\frac{5}{16}$ "	193.9	$3\frac{9}{16}$ "	300.6
$1\frac{3}{32}$ "	91.8	$2\frac{11}{32}$ "	196.8	$3\frac{1}{2}$ "	304.9
$1\frac{1}{8}$ "	94.5	$2\frac{3}{8}$ "	201.0	$3\frac{5}{8}$ "	307.6
$1\frac{5}{16}$ "	97.1	$2\frac{13}{32}$ "	203.8	$3\frac{21}{32}$ "	308.0
$1\frac{3}{8}$ "	99.2	$2\frac{7}{16}$ "	205.9	$3\frac{11}{16}$ "	311.6
$1\frac{7}{16}$ "	102.6	$2\frac{15}{16}$ "	207.3	$3\frac{23}{16}$ "	315.6
$1\frac{1}{4}$ "	105.2	$2\frac{1}{2}$ "	211.3	$3\frac{3}{4}$ "	316.0

Based on 12'-0" bars.

D A T A

TABLE OF DIAMETERS, CIRCUMFERENCES, AND AREAS OF CIRCLES

CONTENTS IN GALLONS AT ONE FOOT IN DEPTH

AREA IN INCHES

DIAM. Inches	CIRC. Inches	AREA Inches	GALLONS 1 Foot Depth	DIAM. Inches	CIRC. Inches	AREA Inches	GALLONS 1 Foot Depth
1"	3.1416	.7854	.04084	1 1/2"	20.420	33.183	1.72552
1/8"	3.5343	.9940	.05169	5/8"	20.813	34.471	1.79249
1/4"	3.9270	1.2271	.06380	3/4"	21.205	35.784	1.86077
3/8"	4.3197	1.4848	.07717	7/8"	21.598	37.122	1.93034
1/2"	4.7124	1.7671	.09188	7"	21.991	38.484	2.00117
5/8"	5.1051	2.0739	.10784	1/8"	22.383	39.871	2.07329
3/4"	5.4978	2.4052	.12506	1/4"	22.776	41.282	2.14666
7/8"	5.8905	2.7611	.14357	3/8"	23.169	42.718	2.22134
2"	6.2832	3.1416	.16333	1/2"	23.562	44.178	2.29726
1/8"	6.6759	3.5465	.18439	5/8"	23.954	45.663	2.37448
1/4"	7.0686	3.9760	.20675	3/4"	24.347	47.173	2.45299
3/8"	7.4613	4.4302	.23036	7/8"	24.740	48.707	2.53267
1/2"	7.8540	4.9087	.25522	8"	25.132	50.265	2.61378
5/8"	8.2467	5.4119	.28142	1/8"	25.515	51.848	2.69609
3/4"	8.6394	5.9395	.30883	1/4"	25.918	53.456	2.77971
7/8"	9.0321	6.4918	.33753	3/8"	26.310	55.088	2.86458
3"	9.4248	7.0686	.36754	1/2"	26.703	56.745	2.95074
1/8"	9.8175	7.6699	.39879	5/8"	27.096	58.426	3.03815
1/4"	10.210	8.2957	.43134	3/4"	27.489	60.132	3.12686
3/8"	10.602	8.9462	.46519	7/8"	27.881	61.862	3.21682
1/2"	10.955	9.6211	.50029	9"	28.274	63.617	3.30408
5/8"	11.388	10.320	.53664	1/8"	28.667	65.396	3.40059
3/4"	11.781	11.044	.57429	1/4"	29.059	67.200	3.49440
7/8"	12.173	11.793	.61324	3/8"	29.452	69.029	3.58951
4"	12.566	12.566	.65343	1/2"	29.845	70.882	3.68586
1/8"	12.959	13.364	.69493	5/8"	30.237	72.759	3.78347
1/4"	13.351	14.186	.73767	3/4"	30.630	74.662	3.88242
3/8"	13.744	15.033	.78172	7/8"	31.023	76.588	3.98258
1/2"	14.137	15.904	.82701	10"	31.416	78.540	4.08408
5/8"	14.529	16.800	.87360	1/8"	31.808	80.515	4.18678
3/4"	14.922	17.720	.92144	1/4"	32.201	82.516	4.29083
7/8"	15.315	18.665	.97058	3/8"	32.594	84.540	4.39608
5"	15.708	19.635	1.02102	1/2"	32.986	86.590	4.50268
1/8"	16.100	20.629	1.07271	5/8"	33.379	88.664	4.61053
1/4"	16.493	21.647	1.12564	3/4"	33.772	90.762	4.71962
3/8"	16.886	22.690	1.17988	7/8"	34.164	92.885	4.82846
1/2"	17.278	23.758	1.23542	11"	34.557	95.033	4.94172
5/8"	17.671	24.850	1.29220	1/8"	34.950	97.205	5.05466
3/4"	18.064	25.967	1.35028	1/4"	35.343	99.402	5.16890
7/8"	18.457	27.108	1.40962	3/8"	35.735	101.623	5.28439
6"	18.849	28.274	1.47025	1/2"	36.128	103.869	5.40119
1/8"	19.242	29.464	1.53213	5/8"	36.521	106.139	5.51923
1/4"	19.635	30.679	1.59531	3/4"	36.913	108.434	5.63857
3/8"	20.027	31.919	1.65979	7/8"	37.306	110.753	5.75916

These tables are theoretically correct, but variations must be expected in practice.

DATA

TABLE OF DIAMETERS, CIRCUMFERENCES, AND AREAS OF CIRCLES

CONTENTS IN GALLONS AT ONE FOOT IN DEPTH—Continued

AREA IN FEET

DIAM. Ft. In.	CIRC. Ft. In.	AREA In Feet	GALLONS 1 Foot Depth	DIAM. Ft. In.	CIRC. Ft. In.	AREA In Feet	GALLONS 1 Foot Depth
1' 1'	3' 1 5/8"	.7854	5.8735	4' 9"	14' 11"	17.7205	132.5209
1' 1"	3' 4 3/8"	.9217	6.8928	4' 10"	15' 2 1/8"	18.3476	137.2105
1' 2"	3' 8"	1.0690	7.9944	4' 11"	15' 5 1/4"	18.9858	142.0582
1' 3"	3' 11"	1.2271	9.1766	5' 1"	15' 8 1/2"	19.6350	146.8384
1' 4"	4' 2 1/8"	1.3962	10.4413	5' 2"	16' 2 3/4"	20.2947	151.7718
1' 5"	4' 5 3/8"	1.5761	11.7866	5' 3"	16' 5 3/4"	20.9656	156.7891
1' 6"	4' 8 1/2"	1.7671	13.2150	5' 4"	16' 9"	21.6475	161.8886
1' 7"	4' 11 3/8"	1.9689	14.7241	5' 5"	17' 0 1/8"	22.3400	167.0674
1' 8"	5' 2 3/4"	2.1816	16.3148	5' 6"	17' 3 1/4"	23.0437	172.3300
1' 9"	5' 5 5/8"	2.4052	17.9870	5' 7"	17' 6 3/8"	23.7583	177.6740
1' 10"	5' 9"	2.6398	19.7414	5' 8"	17' 9 3/8"	24.4835	183.0973
1' 11"	6' 2 1/4"	2.8852	21.4830	5' 9"	18' 0 3/4"	25.2199	188.6045
2' 1"	6' 5 3/8"	3.1416	23.4940	5' 10"	18' 3 3/8"	25.9672	194.1930
2' 2"	6' 8 1/2"	3.4087	25.4916	5' 11"	18' 6 3/8"	26.7251	199.8610
2' 3"	6' 11 3/8"	3.6869	27.5720	6' 1"	19' 0 3/4"	27.4943	205.6133
2' 4"	7' 2 1/4"	3.9760	29.7340	6' 2"	19' 3 3/8"	28.2744	211.4472
2' 5"	7' 5 3/8"	4.2760	32.6976	6' 3"	19' 6 3/8"	29.0696	217.3042
2' 6"	7' 8 1/2"	4.5869	34.3027	6' 4"	20' 0 3/4"	30.6796	223.1612
2' 7"	7' 11 3/8"	4.9087	36.7092	6' 5"	20' 3 3/8"	31.831	229.0182
2' 8"	8' 2 1/4"	5.2413	39.1964	6' 6"	21' 0 3/4"	33.1831	234.8752
2' 9"	8' 5 3/8"	5.5850	41.7668	6' 7"	21' 3 3/8"	34.6350	240.7322
2' 10"	8' 8 1/2"	5.9395	44.4179	6' 8"	21' 6 3/8"	35.7847	246.5892
2' 11"	8' 11 3/8"	6.3049	47.1505	6' 9"	21' 9 3/8"	36.8486	252.4462
3' 1"	9' 2 1/4"	6.6813	49.9654	7' 1"	22' 0 3/4"	38.4846	258.3032
3' 2"	9' 5 3/8"	7.0686	52.8618	7' 2"	22' 3 3/8"	41.2825	264.1602
3' 3"	9' 8 1/2"	7.4666	55.8382	7' 3"	22' 6 3/8"	44.1787	270.0172
3' 4"	9' 11 3/8"	7.8757	58.8976	7' 4"	23' 0 3/4"	47.1730	275.8742
3' 5"	10' 2 1/4"	8.2957	62.0386	7' 5"	23' 3 3/8"	50.2656	281.7312
3' 6"	10' 5 3/8"	8.7265	65.2602	7' 6"	23' 6 3/8"	53.4562	287.5882
3' 7"	10' 8 1/2"	9.1683	68.5193	7' 7"	24' 0 3/4"	56.7451	293.4452
3' 8"	10' 11 3/8"	9.6211	73.1504	7' 8"	24' 3 3/8"	60.1321	299.3022
3' 9"	11' 2 1/4"	10.0846	75.4166	7' 9"	24' 6 3/8"	63.6174	305.1592
3' 10"	11' 5 3/8"	10.5591	78.9652	7' 10"	25' 0 3/4"	67.2007	311.0162
3' 11"	11' 8 1/2"	11.0446	82.5959	7' 11"	25' 3 3/8"	70.8823	316.8732
3' 12"	11' 11 3/8"	11.5409	86.3074	8' 1"	25' 6 3/8"	74.6620	322.7302
4' 1"	12' 2 1/4"	12.0481	90.1004	8' 2"	26' 0 3/4"	78.5400	328.5872
4' 2"	12' 5 3/8"	12.5664	93.9754	8' 3"	26' 3 3/8"	82.5160	334.4442
4' 3"	12' 8 1/2"	13.0952	97.9310	8' 4"	26' 6 3/8"	86.5903	340.3012
4' 4"	13' 2 1/4"	13.6353	101.9701	8' 5"	27' 0 3/4"	90.7627	346.1582
4' 5"	13' 5 3/8"	14.1862	103.0300	8' 6"	27' 3 3/8"	95.0334	352.0152
4' 6"	13' 8 1/2"	14.7479	110.2907	8' 7"	27' 6 3/8"	99.4021	357.8722
4' 7"	13' 11 3/8"	15.3206	114.5735	8' 8"	28' 0 3/4"	103.8691	363.7292
4' 8"	14' 2 1/4"	15.9043	118.9386	8' 9"	28' 3 3/8"	108.4342	369.5862
4' 9"	14' 5 3/8"	16.4986	123.3830	8' 10"	28' 6 3/8"	113.0976	375.4432
4' 10"	14' 8 1/2"	17.1041	127.9112	8' 11"	29' 0 3/4"	117.8590	381.3002
4' 11"	14' 11 3/8"			9' 1"	29' 3 3/8"	122.7187	387.1572
5' 1"	15' 2 1/4"			9' 2"	29' 6 3/8"	127.6765	393.0142
5' 2"	15' 5 3/8"			9' 3"	30' 0 3/4"		
5' 3"	15' 8 1/2"			9' 4"	30' 3 3/8"		
5' 4"	15' 11 3/8"			9' 5"	30' 6 3/8"		
5' 5"	16' 2 1/4"			9' 6"	31' 0 3/4"		
5' 6"	16' 5 3/8"			9' 7"	31' 3 3/8"		
5' 7"	16' 8 1/2"			9' 8"	31' 6 3/8"		
5' 8"	16' 11 3/8"			9' 9"	32' 0 3/4"		
5' 9"	17' 2 1/4"			9' 10"	32' 3 3/8"		
5' 10"	17' 5 3/8"			9' 11"	32' 6 3/8"		
5' 11"	17' 8 1/2"			10' 1"	33' 0 3/4"		
6' 1"	17' 11 3/8"			10' 2"	33' 3 3/8"		
6' 2"	18' 2 1/4"			10' 3"	33' 6 3/8"		
6' 3"	18' 5 3/8"			10' 4"	34' 0 3/4"		
6' 4"	18' 8 1/2"			10' 5"	34' 3 3/8"		
6' 5"	18' 11 3/8"			10' 6"	34' 6 3/8"		
6' 6"	19' 2 1/4"			10' 7"	35' 0 3/4"		
6' 7"	19' 5 3/8"			10' 8"	35' 3 3/8"		
6' 8"	19' 8 1/2"			10' 9"	35' 6 3/8"		
6' 9"	19' 11 3/8"			10' 10"	36' 0 3/4"		
6' 10"	20' 2 1/4"			10' 11"	36' 3 3/8"		
6' 11"	20' 5 3/8"			11' 1"	36' 6 3/8"		
7' 1"	20' 8 1/2"			11' 2"	37' 0 3/4"		
7' 2"	20' 11 3/8"			11' 3"	37' 3 3/8"		
7' 3"	21' 2 1/4"			11' 4"	37' 6 3/8"		
7' 4"	21' 5 3/8"			11' 5"	38' 0 3/4"		
7' 5"	21' 8 1/2"			11' 6"	38' 3 3/8"		
7' 6"	21' 11 3/8"			11' 7"	38' 6 3/8"		
7' 7"	22' 2 1/4"			11' 8"	39' 0 3/4"		
7' 8"	22' 5 3/8"			11' 9"	39' 3 3/8"		
7' 9"	22' 8 1/2"			11' 10"	39' 6 3/8"		
7' 10"	22' 11 3/8"			11' 11"	40' 0 3/4"		
7' 11"	23' 2 1/4"			12' 1"	40' 3 3/8"		
8' 1"	23' 5 3/8"			12' 2"	40' 6 3/8"		
8' 2"	23' 8 1/2"			12' 3"	41' 0 3/4"		
8' 3"	23' 11 3/8"			12' 4"	41' 3 3/8"		
8' 4"	24' 2 1/4"			12' 5"	41' 6 3/8"		
8' 5"	24' 5 3/8"			12' 6"	42' 0 3/4"		
8' 6"	24' 8 1/2"			12' 7"	42' 3 3/8"		
8' 7"	24' 11 3/8"			12' 8"	42' 6 3/8"		
8' 8"	25' 2 1/4"			12' 9"	43' 0 3/4"		
8' 9"	25' 5 3/8"			12' 10"	43' 3 3/8"		
8' 10"	25' 8 1/2"			12' 11"	43' 6 3/8"		
8' 11"	25' 11 3/8"			13' 1"	44' 0 3/4"		
9' 1"	26' 2 1/4"			13' 2"	44' 3 3/8"		
9' 2"	26' 5 3/8"			13' 3"	44' 6 3/8"		
9' 3"	26' 8 1/2"			13' 4"	45' 0 3/4"		
9' 4"	26' 11 3/8"			13' 5"	45' 3 3/8"		
9' 5"	27' 2 1/4"			13' 6"	45' 6 3/8"		
9' 6"	27' 5 3/8"			13' 7"	46' 0 3/4"		
9' 7"	27' 8 1/2"			13' 8"	46' 3 3/8"		
9' 8"	27' 11 3/8"			13' 9"	46' 6 3/8"		
9' 9"	28' 2 1/4"			13' 10"	47' 0 3/4"		
9' 10"	28' 5 3/8"			13' 11"	47' 3 3/8"		
9' 11"	28' 8 1/2"			14' 1"	47' 6 3/8"		
10' 1"	28' 11 3/8"			14' 2"	48' 0 3/4"		
10' 2"	29' 2 1/4"			14' 3"	48' 3 3/8"		
10' 3"	29' 5 3/8"			14' 4"	48' 6 3/8"		
10' 4"	29' 8 1/2"			14' 5"	49' 0 3/4"		
10' 5"	29' 11 3/8"			14' 6"	49' 3 3/8"		
10' 6"	30' 2 1/4"			14' 7"	49' 6 3/8"		
10' 7"	30' 5 3/8"			14' 8"	50' 0 3/4"		
10' 8"	30' 8 1/2"			14' 9"	50' 3 3/8"		
10' 9"	30' 11 3/8"			14' 10"	50' 6 3/8"		
10' 10"	31' 2 1/4"			14' 11"	51' 0 3/4"		
10' 11"	31' 5 3/8"			15' 1"	51' 3 3/8"		
11' 1"	31' 8 1/2"			15' 2"	51' 6 3/8"		
11' 2"	31' 11 3/8"			15' 3"	52' 0 3/4"		
11' 3"	32' 2 1/4"			15' 4"	52' 3 3/8"		
11' 4"	32' 5 3/8"			15' 5"	52' 6 3/8"		
11' 5"	32' 8 1/2"			15' 6"	53' 0 3/4"		
11' 6"	32' 11 3/8"			15' 7"	53' 3 3/8"		
11' 7"	33' 2 1/4"			15' 8"	53' 6 3/8"		
11' 8"	33' 5 3/8"			15' 9"	54' 0 3/4"		
11' 9"	33' 8 1/2"			15' 10"	54' 3 3/8"		
11' 10"	33' 11 3/8"			15' 11"	54' 6 3/8"		
11' 11"	34' 2 1/4"			16' 1"	55' 0 3/4"		
12' 1"	34' 5 3/8"			16' 2"	55' 3 3/8"		
12' 2"	34' 8 1/2"			16' 3"	55' 6 3/8"		
12' 3"	34' 11 3/8"			16' 4"	56' 0 3/4"		
12' 4"	35' 2 1/4"			16' 5"	56' 3 3/8"		
12' 5"	35' 5 3/8"			16' 6"	56' 6 3/8"		
12' 6"	35' 8 1/2"			16' 7"	57' 0 3/4"		
12' 7"	35' 11 3/8"			16' 8"	57' 3 3/8"		
12' 8"	36' 2 1/4"			16' 9"	57' 6 3/8"		
12' 9"	36' 5 3/8"			16' 10"	58' 0 3/4"		
12' 10"	36' 8 1/2"			16' 11"	58' 3 3/8"		
12' 11"	36' 11 3/8"			17' 1"	58' 6 3/8"		
13' 1"	37' 2 1/4"			17' 2"	59' 0 3/4"		
13' 2"	37' 5 3/8"			17' 3"	59' 3 3/8"		
13' 3"	37' 8 1/2"			17' 4"	59' 6 3/8"		
13' 4"	37' 11 3/8"			17' 5"	60' 0 3/4"		
13' 5"	38' 2 1/4"			17' 6"	60' 3 3/8"		
13' 6"	38' 5 3/8"			17' 7"	60' 6 3/8"		
13' 7"	38' 8 1/2"			17' 8"	61' 0 3/4"		
13' 8"	38' 11 3/8"			17' 9"	61' 3 3/8"		
13' 9"	39' 2 1/4"			17' 10"	61' 6 3/8"		
13' 10"	39' 5 3/8"			17' 11"	62' 0 3/4"		
13' 11"	39' 8 1/2"			18' 1"	62' 3 3/8"		
14' 1"	39' 11 3/8"			18' 2"	62' 6 3/8"		
14' 2"	40' 2 1/4"			18' 3"	63' 0 3/4"		
14' 3"	40' 5 3/8"			18' 4"	63' 3 3/8"		
14' 4"	40' 8 1/2"			18' 5"	63' 6 3/8"		
14' 5"	40' 11 3/8"			18' 6"	64' 0 3/4"		
14' 6"	41' 2 1/4"			18' 7"	64' 3 3/8"		
14' 7"	41' 5 3/8"			18' 8"	64' 6 3/8"		
14' 8"	41' 8 1/2"			18' 9"	65' 0 3/4"		
14' 9"	41' 11 3/8"			18' 10"	65' 3 3/8"		
14' 10"	42' 2 1/4"			18' 11"	65		

CAPACITY OF TANKS IN GALLONS VARIOUS DEPTHS AND DIAMETERS

DIAMETER Inches	DEPTH OF TANKS IN INCHES						
	12" DEEP Gallons	24" DEEP Gallons	30" DEEP Gallons	36" DEEP Gallons	42" DEEP Gallons	48" DEEP Gallons	60" DEEP Gallons
6	1.4	2.9	3.6	4.3	5.1	5.8	7.3
7	1.9	3.8	4.7	5.7	6.6	7.6	9.5
8	2.6	5.2	6.5	7.8	9.1	10.4	13.0
9	3.3	6.6	8.2	9.9	11.5	13.2	16.5
10	4.1	8.1	10.2	12.2	14.2	16.3	20.4
11	4.5	9.0	11.2	13.5	15.7	18.0	22.5
12	5.9	11.7	14.6	17.6	20.5	23.4	29.3
13	6.9	13.7	17.2	20.6	24.1	27.5	34.4
14	7.9	15.9	19.9	23.9	27.9	31.9	39.9
15	9.1	18.3	22.9	27.5	32.1	36.7	45.9
16	10.4	20.8	26.1	31.3	36.5	41.7	52.2
17	11.7	23.5	29.4	35.3	41.2	47.1	58.9
18	13.2	26.4	33.0	39.6	46.2	52.8	66.0
19	14.7	29.4	36.8	44.1	51.5	58.8	73.6
20	16.3	32.4	40.6	48.7	56.9	65.1	81.6
21	17.9	35.9	44.9	53.9	62.9	71.9	89.9
22	19.7	39.4	49.3	59.2	69.0	78.9	98.7
23	21.5	43.1	53.9	64.7	75.5	86.3	107.9
24	23	47	58	70	82	94	117
25	25	51	63	76	89	102	127
26	27	55	68	82	96	110	137
27	29	59	74	89	104	119	148
28	32	65	81	98	114	131	163
29	34	68	85	102	119	137	171
30	36	73	91	110	128	147	183
31	39	78	98	117	137	157	196
32	41	83	104	125	146	167	208
33	44	89	111	133	155	178	222
34	47	94	117	141	164	188	235
35	50	100	125	150	175	200	250
36	52	105	132	158	185	211	264
37	55	111	139	167	195	223	279
38	59	118	147	177	206	236	295
39	62	124	155	186	217	248	310
40	65	130	163	195	228	261	326
41	68	137	171	205	239	274	342
42	73	146	183	219	255	292	365
43	75	151	189	226	264	302	377
44	79	158	198	237	276	316	395
45	82	165	206	247	288	330	412
46	86	172	216	258	301	345	431
47	90	180	225	270	315	360	450
48	94	188	235	282	329	376	470
49	98	196	245	294	343	392	490
50	102	204	255	306	357	408	510
51	103	206	257	309	360	412	515
52	110	220	275	330	385	440	550
53	114	229	286	343	400	458	572
54	119	238	297	357	416	476	595
55	123	247	308	370	432	494	617
56	128	256	320	384	448	512	640
57	132	265	331	397	463	530	662
58	137	274	343	411	480	549	686
59	142	284	355	426	497	568	710
60	146	294	367	440	514	587	734

The capacity of tanks, as figured above, is theoretical and variations must be expected. In cases where the fractional part of a gallon ran into two figures or more we used only the first figure of the fraction in order to give a working margin of safety.

USEFUL RULES CALCULATIONS

To Find the Capacity of a Tank in Gallons

1. All measurements must be reduced to inches.
 For rectangular tanks, multiply the length by the width by the depth.
 For cylindrical tanks, multiply the length by the square of the diameter by .7854.
 For elliptical section tanks, multiply the length by the short diameter by the long diameter by .00339.
2. Divide the result of any of the above calculations by 231, which is the number of cubic inches in a gallon; the result is the capacity of the tank in gallons.

Relative to a Circle

- To find Circumference—Multiply the diameter by 3.1416; or, divide diameter by 0.3183.
- To find Diameter—Multiply the circumference by 0.3183; or, divide circumference by 3.1416.
- To find Radius—Multiply the circumference by 0.15915; or, divide circumference by 6.28318; or, divide diameter by 2.
- To find the Side of a Square to be inscribed in a Circle—Multiply diameter by 0.7071; or, multiply the circumference by 0.2251; or, divide the circumference by 4.4428.
- To find the Side of a Square to equal the Area of a Circle—Multiply the diameter by 0.8862; or, divide diameter by 1.1284; or, multiply the circumference by 0.2821; or, divide circumference by 3.545.
- To find the Area of a Circle—Multiply the circumference by one-quarter of the diameter; or, multiply the square of the diameter by 0.7854; or, multiply the square of the circumference by 0.7958; or, multiply the square of one-half the diameter by 3.1416.

Relative to a Square

- A side multiplied by 1.412 equals the diameter of a circle which will circumscribe the given square.
- A side multiplied by 4.443 equals the circumference of its circumscribing circle.
- A side multiplied by 1.1284 equals the diameter of a circle equal in area to that given square.
- A side multiplied by 3.545 equals circumference of an equal circle.
- To find the Area of an Ellipse—Multiply the product of its axis by .7854; or, multiply the product of its semi-axis by 3.14159.

Relative to Other Geometrical Forms

- To find:
 Contents of a cylinder = area of end \times length.
 Contents of a wedge = area of triangular base \times altitude.
 Surface of a cylinder = length \times circumference plus area of both ends.
 Surface of a sphere = diameter squared \times 3.1416; or, diameter \times circumference.
 Contents of a sphere = diameter cubed \times 0.5236.
 Contents of a pyramid or cone, right or oblique, regular or irregular = area of base \times one-third of the altitude.
 Area of a triangle = base \times one-half the altitude.
 Area of a parallelogram = base \times altitude.
 Area of a trapezoid = altitude \times one-half the sum of parallel sides.

To Determine Safe Working Pressure for Seamless Tube in Pounds per Square Inch

- First—Ascertain the tensile strength of the metal in the tube.
- Second—Multiply the tensile strength by the thickness of the metal in inches, or decimal parts of an inch.
- Third—Divide by the radius (one-half of the inside diameter) expressed in inches, and the result shows the bursting pressure in pounds per square inch.
- Fourth—Divide the bursting pressure by the factor of safety to determine safe working pressure. If a safety factor of six (6) is allowed, divide the bursting pressure by six (6).

Example: A tube 4 in. inside diameter, No. 8 B. & S. gauge, made of Brass, which has a tensile strength of 40,000 lbs. per square inch, shows 428 lbs. pressure per square inch as follows:

40,000 lbs. per square inch.
 .1284 or No. 8 B. & S. thick.

$\frac{1}{2}$ dia. of 4 in. } Tube = 2 in. }	5136.0000
Factor of } safety, 6 }	2568.0000
428 lbs. pressure per square inch.	

For tensile strength of Metals see page 236.

D A T A

THEORETICAL BURSTING PRESSURE, IN POUNDS, FOR WELDED STAINLESS STEEL TUBES

(Based on Barlow's Formula)

WALL THICKNESS

Inches:	.022	.025	.028	.032	.035	.042	.049	.058	.065	.072	.083	.095	.109	.120
BWG:	24	23	22	21	20	19	18	17	16	15	14	13	12	11
1/4	13,200	15,000	16,800	19,200	21,000	25,200	29,400							
3/8	10,690	12,010	13,450	15,390	16,820	20,200	23,550							
1/2	8,800	10,000	11,200	12,800	14,000	16,800	19,600							
3/4	7,550	8,580	9,620	10,950	12,050	14,420	16,820							
1	6,600	7,500	8,400	9,600	12,500	12,600	14,700							
1 1/8	5,860	6,660	7,460	8,525	9,320	11,200	13,080							
1 1/4	5,280	6,000	6,725	7,690	8,410	10,900	11,750	14,920	15,600					
1 1/2	4,800	5,460	6,110	6,980	7,650	9,160	10,700	12,680	14,200					
1 3/4	4,400	5,000	5,600	6,400	7,000	8,400	9,800	11,600	13,000	14,400				
2	4,060	4,615	5,170	5,910	6,460	7,750	9,045	10,620	12,000	13,300				
2 1/8	3,765	4,280	4,795	5,480	6,000	7,195	8,390	9,940	11,130	12,330				
2 1/4	3,510	3,990	4,470	5,110	5,590	6,710	7,820	9,260	10,395	11,550				
2 1/2		3,750	4,200	4,800	5,250	6,300	7,350	8,700	9,750	10,800	12,420	14,230		
2 3/4		3,330	3,730	4,260	4,660	5,590	6,520	7,220	8,650	9,600	11,050	12,650		
3		3,000	3,360	3,835	4,200	5,030	5,870	6,950	7,800	8,640	9,950	11,400	13,090	
3 1/8		2,730	3,050	3,490	3,820	4,575	5,350	6,320	7,090	7,850	9,050	10,370	11,900	
3 1/4		2,500	2,800	3,200	3,500	4,200	4,900	5,790	6,500	7,200	8,300	9,500	10,900	12,000
3 1/2		2,310	2,580	2,950	3,230	3,875	4,520	5,350	6,000	6,640	7,655	8,775	10,050	11,100
3 3/4		2,140	2,400	2,740	3,000	3,600	4,200	4,970	5,570	6,170	7,120	8,140	9,350	10,300
4					2,800	3,360	3,920	4,630	5,190	5,755	6,645	7,600	8,720	9,600
4 1/8					2,625	3,150	3,670	4,350	4,870	5,400	6,220	7,125	8,175	9,000
4 1/4					2,470	2,960	3,460	4,090	4,590	5,085	5,850	6,700	7,700	8,470
4 1/2						2,800	3,260	3,865	4,325	4,800	5,530	6,330	7,270	8,000
4 3/4						2,650	3,090	3,660	4,100	4,550	5,240	6,000	6,880	7,570
5						2,520	2,940	3,475	3,900	4,320	4,980	5,700	6,540	7,200
5 1/8						2,400	2,800	3,310	3,710	4,120	4,740	5,430	6,230	6,850
5 1/4							2,670	3,165	3,540	3,930	4,525	5,180	5,945	6,545
5 1/2							2,555	3,020	3,390	3,755	4,330	4,950	5,690	6,250
5 3/4							2,445	2,895	3,250	3,600	4,150	4,750	5,445	6,000
6							2,350	2,785	3,120	3,455	3,980	4,570	5,230	5,570
6 1/8							2,260	2,675	3,000	3,320	3,830	4,380	5,030	5,540
6 1/4							2,180	2,575	2,890	3,200	3,700	4,225	4,845	5,330
6 1/2							2,100	2,480	2,785	3,085	3,560	4,070	4,670	5,140
6 3/4							2,025	2,400	2,685	2,980	3,435	3,930	4,510	4,970
7								2,320	2,600	2,880	3,320	3,800	4,360	4,800
7 1/8								2,245	2,515	2,790	3,210	3,680	4,220	4,645
7 1/4								2,170	2,435	2,700	3,110	3,560	4,090	4,500

The Barlow formula, used in calculating bursting pressures, is:

$$P = \frac{2 S t}{D}$$

- P=Bursting pressure, psi.
S=Ultimate strength of tube material, psi.
t=Tube wall thickness, inches
D=Outside diameter of tube, inches.

The tables are worked out on a basis of 75,000 psi. ultimate strength for stainless steel. For the bursting pressure of other metals, the appropriate tensile strengths can be used and the values calculated.

DATA

A CONVENIENT METHOD TO DETERMINE THE NUMBER OF SQUARE OR LINEAL FEET FOR SHEET METAL, RODS AND TUBES

Decimals of a Foot Equivalent to Inches and Fractions of an Inch

	0	1	2	3	4	5	6	7	8	9	10	11
0	Foot	.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167
1/16"		.0052	.0885	.1719	.2552	.3385	.4219	.5052	.5885	.6719	.7552	.8385
1/8"		.0104	.0938	.1771	.2604	.3438	.4271	.5104	.5938	.6771	.7604	.8438
3/16"		.0156	.0990	.1823	.2656	.3490	.4323	.5156	.5990	.6823	.7656	.8490
1/4"		.0208	.1042	.1875	.2708	.3542	.4375	.5208	.6042	.6875	.7708	.8542
5/16"		.0260	.1094	.1927	.2760	.3594	.4427	.5260	.6094	.6927	.7760	.8594
3/8"		.0313	.1146	.1979	.2813	.3646	.4479	.5313	.6146	.6979	.7813	.8646
7/16"		.0365	.1198	.2031	.2865	.3698	.4531	.5365	.6198	.7031	.7865	.8698
1/2"		.0417	.1250	.2083	.2917	.3750	.4583	.5417	.6250	.7083	.7917	.8750
9/16"		.0469	.1302	.2135	.2969	.3802	.4635	.5469	.6302	.7135	.7969	.8802
5/8"		.0521	.1354	.2188	.3021	.3854	.4688	.5521	.6354	.7188	.8021	.8854
11/16"		.0573	.1406	.2240	.3073	.3906	.4740	.5573	.6406	.7240	.8073	.8906
3/4"		.0625	.1458	.2292	.3125	.3958	.4792	.5625	.6458	.7292	.8125	.8958
13/16"		.0677	.1510	.2344	.3177	.4010	.4844	.5677	.6510	.7344	.8177	.9010
7/8"		.0729	.1563	.2396	.3229	.4063	.4896	.5729	.6563	.7396	.8229	.9063
15/16"		.0781	.1615	.2448	.3281	.4115	.4948	.5781	.6615	.7448	.8281	.9115

Example "A"—To find the number of square feet there are in 600 pieces of Sheet Metal $8\frac{1}{4}" \times 8' 6\frac{9}{16}"$. Multiply the factor for $8\frac{1}{4}"$ (.6875") by 8.5469 (.5469 = factor for $6\frac{9}{16}"$) which would equal 5.876 square feet. Then multiplying by 600, the total number of square feet would be 3525.6.

Example "B"—To determine the number of lineal feet in 287 pieces of, say one inch diameter tubing $7' 8\frac{7}{16}"$ long—multiply 287 by 7.7031 (.7031 you will note in the above table is $8\frac{7}{16}"$ converted into feet). The total number of feet would be 2210.7897 or (reduced to one decimal), 2210.8.

All weights in this section are theoretical and may vary in actual practice. All figures have been carefully compiled and checked but we cannot be responsible for errors.

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of *Industry*

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INCONEL • BRASS
ALUMINUM • S
NICKEL • INCONEL
EVERDUR

BRASS • C
STAINLESS STEEL
INCONEL • EVE
• CASTINGS •
AIR • DUR

sheet
rod
shapes
pipe • tube
fasteners
welding
spec. products

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See inside covers
for addresses and
phone numbers.

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Wherever practical, the items listed in this index are grouped alphabetically according to metal or alloy rather than form.

This arrangement supplements the mechanical method used in indexing and sub-indexing the main body of this catalog and will enable you to locate rapidly the items you need.

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